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PROCEEDINGS

OF THE

Bournemouth Natural Science Society.

VOL. XVI.

SESSION, 1923–24.

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Bournemouth Natural Science Society.

VOL. XVI
SESSION 1923-24

PUBLISHED BY THE SOCIETY AT ITS HOUSE, 39, CHRISTCHURCH ROAD, BOURNEMOUTH, 1925.

"*Bournemouth Guardian*," *Ltd., 158, Commercial Road, Bournemouth.*

ERRATUM IN VOL. XV.

The name of the Society's Delegate on page 49, Vol. XV., should be Miss H. V. Davies, B.Sc., not Miss Ida L. Roper, F.L.S.

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Introductory Note.

THE Bournemouth Natural Science Society was founded in 1903, being the successor to an older society which was formed in 1883 and dissolved in 1897. The early meetings of the Society were held in a room hired from time to time for the purpose, but the need of some fixed quarters was soon felt. To meet this need a small room was taken at 122, Old Christchurch Road, and, as this proved inadequate, in February, 1909, better accommodation was secured at Granville Chambers and retained for four years. In March, 1913, the Society took on lease from the Education Committee a large room on the ground floor of the Municipal College. In 1919 this also had to be given up, and the Society succeeded in acquiring a house of its own, 39, Christchurch Road. The formal opening was on February 7, 1920. It is hoped that the possession of this freehold house will enable the Society to offer its members many new advantages and to extend its activities in such directions as may seem advisable.

The objects of the Society are declared by the second of its rules to be " the promotion of the study of Science in all its branches by means of Lectures, Field Meetings, the Reading and Discussion of Papers, and the formation of Sections of its members devoted to any particular branch of the Society's work, and in any way that the Council of the Society shall deem advisable."

The Sections at present working are as follows:— **Archæological and Historical, Astronomical, Botanical, Entomological, Geographical, Geological, Mathematical, Microscopical, Photographic and Record, Physical, and Zoological.**

During the WINTER SESSION, from October to April, GENERAL and SECTIONAL MEETINGS are held. TWO GENERAL MEETINGS are usually held in each month, comprising Lectures and Demonstrations on various subjects of scientific interest, illustrated by lantern slides, diagrams, specimens or experiments.

SECTIONAL MEETINGS.—Each Section usually holds a meeting once a month. At these meetings which, equally with the General Meetings, are open to all members of the Society, the papers read are more specialised and technical.

Throughout the SUMMER SESSION, EXCURSIONS to places of interest in the neighbourhood are arranged and indoor or garden meetings occasionally held.

The management of the Society is vested in a Council, which is elected at the Annual General Meeting, held in October.

The Society possesses a Library available for the use of members. This is yearly becoming more extensive and valuable by the acquisition of standard text books and of books dealing with matters of local scientific interest. Books may, under certain conditions, be borrowed by members and there is a Reading Room in which works of reference may be consulted.

The Society's collections of archæological, botanical, geological, zoological and other specimens are now arranged in the MUSEUM. Articles on the collections were contributed to Vol. V. and Vol. X. by Sir Daniel Morris and Mr. W. G. Wallace respectively.

Members are elected by the Council and pay an annual subscription of £1 for full membership (admitting to all meetings and excursions for the year), a subscription of £2 covers four adult members of the same family residing in the same house.

A MONTHLY NOTICE, giving full details of all meetings, etc., is posted to every member before the beginning of each month, and a volume of Proceedings is published every year.

Application Forms for Membership, and further particulars, can be obtained from the

HON. SECRETARY,

Bournemouth Natural Science Society.
39, Christchurch Road,
Bournemouth.

Bournemouth Natural Science Society.

OFFICERS AND COUNCIL FOR 1923-24.

President:

SIR FREDERICK WILLIAM KEEBLE, K.B.E., D.Sc., F.R.S.

Vice-Presidents:

HENRY BACKHOUSE, F.R.H.S.
G. E. J. CRALLAN, M.A., M.B., M.R.C.S.
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REV. E. F. LINTON, M.A., F.L.S.
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R. V. SHERRING, F.L.S.
REV. HY. SHAEN SOLLY, M.A.
SIR DANIEL MORRIS, K.C.M.G., J.P., M.A., D.SC., D.C.L., LL.D., F.L.S.

Chairman of Council:

J. H. RALPH SMYTHE, J.P.

Deputy-Chairman of Council:

REV. C. O. S. HATTON, B.A., F.L.S.

Council:

THE OFFICERS AND CHAIRMEN OF SECTIONS (ex-officio)
HENRY BACKHOUSE
MRS. CURME
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J. M. FRENCH
MISS S. G. ROOKE
J. H. SCOTT, M.E., M.I.M.C.E.
R. V. SHERRING, F.L.S.
REV. E. J. DOUGLAS SIMPSON, M.A.
J. H. RALPH SMYTHE, J.P.
J. F. SPENCER
W. J. WOODHOUSE

Chairmen of Sections:

Archæological and Historical: REV. H. SHAEN SOLLY, M.A.
Astronomical: COL. E. E. MARKWICK, C.B., C.B.E., F.R.A.S.
Botanical: HOWARD LACEY.
Entomological: JOSEPH NEALE, B.A.
Geographical: CLAUDE LYON.
Geological: HENRY BURY, M.A., F.L.S., F.G.S.
Mathematical: B. M. PEEK, M.A., F.R.A.S.
Microscopical: F. B. TAYLOR, B.A.
Photographical and Record: R. Y. BANKS.
Physical: HUBERT PAINTER, B.SC., F.C.S.
Zoological: F. G. PENROSE, M.D., F.R.C.P., F.Z.S., M.B.O.U.

Hon. Treasurer:

GEO. BRUMELL, "Maori," 15, Richmond Park Avenue.

Secretaries:

Hon. Secretary: R. A. DE PAIVA, San Remo, 13, Carysfort Road, to whom all official correspondence should be addressed.
Hon. Assistant Secretary: W. J. WOODHOUSE, A.C.P., M.I.H., 35, Chatsworth Road.
Assistant Secretary: J. F. SPENCER, "Glenthorne," Richmond Park Road.

Hon. Librarian:

Claude Lyon, 9, Knole Road.
Hon. Assistant Librarian: Miss A. G. Veale, 2, Richmond Park Crescent.

Hon. Editor:

F. B. Taylor, b.a., "Claregarth," Montague Road, W. Southbourne.

Hon. Curator:

Rev. C. O. S. Hatton, b.a., f.l.s., Hinton Vicarage, Christchurch.

Hon. Auditors:

E. Bicker. C. H. Blackett.

Bankers:

National Provincial Bank of England, Bournemouth.

List of Members.

Revised to 5th January, 1925.

* Honorary Members. † Past Presidents. ◗ Original Members.
G Morris Gold Medallist. A Associate Members.
Members elected since August 1st in Italics.
The year of election is given before the name of each member

A

1905	Alder, Mrs.	East Grove, Lymington
1920	Alexander, J. A., F.R.G.S., F.R.S. (Edin.)	Waverley, Rossmore Avenue, Parkstone
1911	AAllen, Rev. F. A., M.A.	Staffa, Wellington Road, Parkstone
1924	Amos, Miss E.	Langley Dene, 55, Wellington Road
1920	Anderson, Col. E. B., C.B.E.	Woodmanton, 35, Wellington Road
1922	Anderson, Col. R. F.	Glenalmond, 5, Madeira Road.
1923	Anderson, Mrs.	,, ,, ,,
1923	Anderson, Mrs. M.	Ranfurly, 18, Dean Park Road
1914	Andrews, W.	Connaught Grange, 81, Alumhurst Road
1905	Archer, J. W.	Windlesham, 5, Braidley Road
1905	Archer, Mrs.	,, ,,
1911	Atkins, Mrs.	10, Fortescue Road
1924	Attwell, A. F., M.P.S.	17, Hamilton Road, Boscombe
1924	Austen, L. G.	Insch, 4 Cromer Road

B

1906	Backhouse, Hy., F.R.H.S.	Yelland, 23, McKinley Road
1920	Ball, Arthur E.	104, Christchurch Road, Boscombe
1903o	Banks, R. Y.	12, Portchester Road
1922	Barker, Saml.	66, West Cliff Road
1921	Barker, Miss W.	,, ,,
1924	*Barker, S.*	18, St. Winifred's Road
1924	*Barker, Mrs. M. M.*	,, ,, ,,
1905	Barlow, E. W., B.SC., F.R.A.S., F.R. MET. SOC.	Greengates, Wadhurst, Sussex.
1921	Barnes, Wm. G., M.A.	Heathfield, Bransgore, Christchurch
1912	ABarraclough, Aug., M.A. (Cantab), F.R.G.S.	173, Richmond Park Road
1909	Barratt, J. Hayes	Brundon, 2, Surrey Road
1924	*Barratt, Mrs. Hayes*	,, ,, ,,
1924	*Barratt, Miss P. M.*	,, ,, ,,
1923	Barraud, Miss L. M.	28, Hathaway Road, Southbourne
1905	Bartlett, H. F. D., F.E.S.	Island of St. Helena, South Atlantic
1920	Bartlett, P. R.	35, King's Park Road
1914	Bartlett, T. O.	Lamorna, Dunkeld Road
1918	ABeaumont, Miss E. J.	12, Sunnyhill Road, W. Southbourne
1923	Bell, Major J. G.	Ivanhoe, Sandringham Road, Parkstone
1923	Benest, Mrs. A. S.	Tijuca, 54, Wellington Road
1920	Bennett, Risdon, M.A.	Yew Cottage, Broadstone
1905	Bennett, Miss E. C.	85, Talbot Road, Winton
1904	Bennett, H. Morden	Sweet Briar, 12, Derby Road.
1921	Bevan, F. M.	17, Stirling Road
1923	Bidwell, Miss A. E.	10, Granville Road, Boscombe
1913	Bilton, Miss C. E.	Dilkhush, 25, Parkwood Road, Boscombe.
1923	Bishop, E.	21, Surrey Road

1912	Blackall, Miss E. E.	10, Harcourt Road, Boscombe Park
1908	Blackett, C. H.	Rosapenna, 16, McKinley Road
1921	Blackett, Miss H. M.	,, ,,
1924	*Blake, Mrs. E. M.*	Derwood, Kinross Road
1916	Bloomfield, Rev. H., M.A.	Moordown Vicarage
1910	*Bond, F. Bligh, F.R.I.B.A.	454, Gloucester Road, Bristol
1920	Borrett, Surgeon Capt., G. G., R.N.	62, Alum Chine Road
1924	Borrett, Mrs.	,, ,,
1924	Borrett, Miss G. M.	,, ,,
1924	Borrett, Miss J.	,, ,,
1924	Bottomley, Miss O.	Langley Dene, 55, Wellington Road
1920	ABourne, Miss C.	Moray House, 6, Percy Road, Boscombe
1914	Bradbury, Miss	La Bocca, 2, Portarlington Road
1914	Bradbury, Miss A.	,, ,,
1914	Bradbury, Miss E.	,, ,,
1924	*Bragg, Miss H. B.*	4, Chester Road
1924	*Bragg, Miss R.*	,, ,,
1924	*Bragg, Miss S. B.*	,, ,,
1908	Brazier, J. J.	Fairlawn, 48, Lowther Road
1922	Brewitt-Taylor, Mrs. Ray	Branksome Lodge, 6, Forest Road, Branksome Park.
1921	Bromley, Miss	81, Lansdowne Road
1917	Brown, Edward	West Ridge, Chessel Avenue
1917	Brown, Mrs.	,, ,, ,, ,,
1921	Brown, Miss B. L.	Kismet, Keswick Road, Boscombe
1924	*Brown, Miss F.*	Chobham House, 4, St. Winifred's Road
1924	*Brown, Miss E.*	,, ,, ,,
1924	*Brown, Miss E. S.*	,, ,, ,,
1923	Browne, John	Serantes, Glen Road, Boscombe
1924	Browning, Miss E. M.	Littleholm, Ferndown
1905	Brumell, Geo., A.R.I.B.A.	Maori, 15, Richmond Park Avenue.
1920	Brumell, Mrs.	,, ,, ,,
1923	Brumell, F.	,, ,, ,,
1920	Brumell, Miss M.	,, ,, ,,
1920	Bryant, Miss M.	Sunnyhill, Hampden Lane, W. Southbourne
1907	Bulfin, Ignatius, B.A.	The Den, 26, Knole Road
1908	Bulfin, Mrs.	,, ,,
1924	*Burgess, J.*	9, Cambridge Road
1924	Burroughs, J. H., J.P.	Moor End, 11, Bodorgan Road
1924	Burroughs, Mrs.	,, ,,
1924	Burroughs, Miss J.	,, ,,
1919	Burstal, Edwd., M.D., OXON.	46. Lansdowne Road
1922	Burton, E. St. John, F.Z.S., F.G.S.	Melville, 4, Howard Road.
1922	Bury, Rev. E., M.A.	The Vicarage, Western Road, Branksome Park.
1922	Bury, Henry, M.A., F.L.S., F.G.S.	The Gate House, 17 Alumdale Road
1924	*Bury, Mrs.*	,, ,,
1924	*Bury, Miss G. E.*	,, ,,
1924	*Bury, Miss H. S.*	,, ,,
1922	Byrde, R. W.	Bracken House, 1, Bracken Road, West Southbourne.
1923	Byrde, Mrs.	,, ,, ,,

C

1910	Cameron, Miss	Little Forest House, 19, Bath Road
1924	Campbell, Miss A. H.	Dane Court, Parkstone
1924	*Campbell, Mrs.*	Pinehurst, Broadstone

1924	*Cardell, G.*, L.D.S.	Exeter House, The Square
1919	Cardew, R. K.	Stafford Lodge, 26, Dean Park Road
1920	Cardew, Mrs.	,, ,,
1922	Carter, Roderick Edmond	Lawnswood, 12, Beechey Road.
1922	Carter, Mrs.	,, ,,
1922	Carter, Miss M. L.	,, ,,
1912	Carus-Wilson, C., F.R.S., Edin., F.G.S.	Altmore, Waldegrave Park, Strawberry Hill, Middlesex and Royal Societies' Club, S.W.
1920	Cassel, Mrs.	Branksome Dene, Alumhurst Road
1923	Castle, Capt. R. A. E.	Castlemount, Glenair Road, Parkstone
1923	Castle, Mrs.	,, ,, ,, ,,
1923	Castle, Miss J. L.	,, ,, ,, ,,
1922	Caudwell, Wm., F.R.C.V.S.	St. Gratien, 70, Lowther Road
1923	Caudwell, Mrs.	,, ,, ,,
1909	Chandler, S. Whitty, B.A., J.P.	St. George's, 4, Cecil Road, Boscombe
1912	AChilver, Miss K. M.	2, Shaftesbury Road
1922	Claridge, J. E. W., LL.C.M.	205, Old Christchurch Road.
1911	Clark, Walter Child	Michelgrove House, Boscombe
1920	Clarke, Miss E.	25, Florence Road, Boscombe
1908	Coddington, E. F.	34, Irving Road
1921	Colborne, E. A.	11, Cambridge Road
1918	Colebrook, H. W. V.	Lynton, 64, Lowther Road
1911	Collins, W. F.	Vellore, Overcliff Drive
1924	Cook, Miss C.	Rosedene, 62, Seaward Avenue
1923	Cooke, H. H.	Maycroft, 7, Beresford Road, W. Southbourne
1912	Cooper, Ernest	100, Old Christchurch Road
1909	Cooper, J. Omer, F.E.S.	Zoological Laboratory, New Museums, Cambridge
1908	Cooper, Rev. W. H. Windle, M.A., F.R.G.S., F.R.H.S.	Owthorpe, 21, Branksome Wood Road
1916	Cowell, G. E.	Hawthorns Hotel, West Cliff Road.
1921	Cradock, Rev. A. W.	67, Richmond Wood Road
1923	Cradock, Mrs.	,, ,,
1903†o	Crallan, G. E.J.,M.A.,M.B.,M.R.C.S.	St. Cross, 13, Bedorgan Road
1922	Crallan, Mrs.	,, ,,
1924	Crane, Mrs. E. C.	Polefield Hotel, Lansdown, Cheltenham
1920	Cressy, Miss H.	Bramcote, 1, Glen Road, Boscombe
1922	Crowther, Miss V.	Berwyn Bank, Poulner Hill, Ringwood.
1924	Cunningham, W. D.	47, Southern Road
1913	Curme, D., Surg. Lt.-Col.	New Bohemia, 1, Nelson Road
1913	Curme, Mrs.	,, ,, ,, ,,
1922	Curme, Miss E. M.	,, ,, ,, ,,
1903	oCurtis, W. Parkinson, F.E.S.	Drake North, Sandringham Road, Parkstone
1922	*Elected an Honorary member	

D

1914	*Dale, Wm., F.S.A.	St. Margaret's, Oak Mount Avenue, Southampton
1922	Dalton, Mrs. E.	Lindum Lodge, 10, Milton Road.
1920	Darke, Miss W. E.	25, Hawkwood Road, Boscombe
1922	Davey, J. Hingston	10, Studland Road
1921	A Davies, Miss H. V., B.SC.	Municipal College
1919	Davison, Miss L.	15, Dean Park Road
1925	*Daw, Miss A. E.*	Woodside, 16, St. Alban's Crescent
1924	*Dawson, Miss A. M.*	6, Cavendish Place
1924	*Dawson, Miss F.*	,, ,,

1924	*Deas, Jos.*, M.A., I.C.S.	57, Wellington Road
1910	de Castro, Mrs.	Sunnydene, 76, Drummond Road
1922	ade Lunat, Mdlle. E.	Granville Chambers, Yelverton Road.
1918	Dence, Miss F. M.	Birk House, Wollstonecraft Road
1905	De Paiva, R. A.	San Remo, 13, Carysfort Road, Boscombe.
1925	*Dicker, C. G. H.*, M.A.	13, King's Park Road
1925	*Dicker, Miss E. H.*	,, ,,
1925	*Dicker, Miss M. H.*	,, ,,
1914	Dickson, Col. W. D., J.P.	Southill, 32, Dean Park Road
1914	Dickson, Mrs.	,, ,,
1919	Dieselhorst, W., A.M.I.C.E.	50, Surrey Road
1924	*Dieselhorst, Mrs.*	,, ,,
1903o*	Dixon, J. R. L., M.R.C.S., L.R.C.P.	
1920	Dodd, Col. J. R., M.D., F.R.C.S.	140, Richmond Park Road
1921	Dodd, Mrs.	,, ,,
1921	Dodd, T. A.	,, ,,
1910	Dodshon, E., L.L.B.	Lloyds Bank Chambers
1923	Druitt, Alan	Willow Lodge, Mudeford, Christchurch
1923	Druitt, Mrs.	,, ,, ,,
1904	Druitt, J., J.P.	Avebury, 10, Madeira Road
1922	Duncan, Hy. J.	The Mount, 17, Branksome Wood Road.
1922	Duncan, Mrs.	,, ,, ,,
1921	Dunn-Gardner, Rt. C.	85, Cornwall Gardens, S. Kensington, S.W. 7
1924	A*Dyer, Miss G. B.*	Victoria Home School, 37, Burnaby Road

E

1924	Edwards, Miss M. J.	Aysgarth, 16, Poole Road
1923	Ellen, Miss D. M.	Staunton, Exeter Park
1922	Ellis, Hy., F.R.A.S.	Branksome Lodge, 6, Forest Road, Branksome Park.
1922	Ellis, Mrs.	,, ,, ,,
1922	Ellis, Miss W. M.	,, ,, ,,
1913	Ellis, Hy. J.	Chesterford, 86, Richmond Park Avenue
1920	Ellis, J. C.	Whyte Gables, Highcliffe, Christchurch
1921	Ellis, Mrs. L. M.	Holmdale, 38, Branksome Wood Road.
1923	Elrington, R.	Mavis Bank, 15, Bodorgan Road
1923	Elrington, Mrs.	,, ,,
1922	Elwes, Lt.-Col. L. C., D.S.O.	Burnt Hill, Broadstone, Dorset.
1922	Elwes, Mrs.	,, ,, ,,
1924	Ensor, Major Fredk. Wm., M.A., B.C.L.	26, Frederica Road, Winton
1924	Ensor, Mrs.	,, ,,
1909	Evans, P. H. L., M.A.	Stirling House, 28, Manor Road

F

1924	Faber, W., F.Z.S.	Midwood, 64, Christchurch Road
1920	Fairbrother, Miss L.	Knole Hall High School for Girls, Knyveton Road
1921	Fane, F. L.	13, Littledown Road
1921	Farmar, Miss D. A.	Dorset Lodge, 10, Suffolk Road
1919	Farmar, Mrs. K. A.	Whitton Lodge, Stevenson Crescent, Parkstone
1922	Farmar, Miss E. A.	,, ,, ,,
1914	Fielding, Thos., M.D.	Genesta, West Hill Road
1903oA	Firbank, Miss, LL.A., A.C.P	5, Buchanan Avenue
1924	*Fison, Mrs. E.*	Nelson Villa, West Hill Road
1922	Fonblanque, Miss Ida	4, Gordon Road.

1917	Forrest, Mrs.	Hillsborough, 36, Westbourne Park Road
1922	Fowler, Arthur R. W., B.A. Cantab.	St. Ina, Beechwood Avenue
1922	Fowler, Mrs. E. M.	,, ,, ,,
1919	Fowler, Miss M.	Lerryn, Chessel Avenue
1910	Frean, Mrs.	Cranicombe, Branksome Avenue
1915	Frean, Miss E.	,, ,,
1920	AFreeman, Miss L. H.	75, Paisley Road, W. Southbourne
1924	Freer, Miss L. W.	9, Cambridge Road
1909	French, J. M.	Jumpers House, Christchurch
1923	Fryer, Miss C. H.	Moulton, 46, Wellington Road

G

1922	Gardiner, Miss F. M.	3, Adeline Road, Boscombe
1921	Gardner, Eric, M.D., F.S.A.	Portmore House, Weybridge, Surrey
1917	Garnett, H. A.	18, Campbell Road, Boscombe
1917	Garnett, Mrs.	,, ,, ,,
1922	Gatty, Lady K.	Ossemsley Manor, Christchurch
1922	Gatty, Miss H.	,, ,,
1922	Gatty, Oliver	,, ,,
1922	Gatty, Richard	,, ,,
1918	Gent, Wm. Hy.	Holme Cote, 30, Montague Road, W. Southbourne
1924	*George, Miss M.*	3, Balmoral, West Hill Road
1923	Gepp, Rev. Edwd.	163, Southcote Road
1921	Geoghegan, Mrs.	25, Wimborne Road
1923	Gibbs, F. L. A.	Hawthorns Hotel, West Cliff Road
1921	Gibbs, Geo. F.	Fairview, 13, Herbert Road
1914	Gill, Edwin R., A.R.C.A.	Rosslyn, Seldown, Poole
1922	Gill, Major Wm. Robt.	Priory Dene, 33, West Cliff Road.
1923	Gill, Mrs.	,, ,,
1924	Goddard, Rev. C. V.	62, Parkwood Road, Boscombe
1924	*Goddard, Mrs. E. K.*	,, ,,
1924	Going, Miss M. H.	Ballygarvan, Stevenson Crescent, Parkstone
1924	*Goodchild, Miss H. R.*	Pentre, 10, Parkwood Road, Boscombe
1924	*Goode, Mrs.*	50, Surrey Road
1921	Gosse, Wm., M.D., D.P.H. (Camb.)	Hope Lodge, Belle Vue Road, Parkstone
1920	Granville, W. P.	Kelvin Lodge, Browning Avenue, Boscombe Manor
1904	Gray, Arthur	Woodville, 26, Melville Road, Winton
1920	Gray, Mrs. Chas.	Elvaston, Beechwood Avenue Boscombe
1911	Gray, Mrs.	Darena, 15, Wellington Road
1924	*Green, Miss J. E.*	58, St. Alban's Avenue
1921	Greg, Mrs.	Fuji Yama, 9, Hengist Road
1914	Greves, E. Hyla, M.D., F.R.C.P.	Rodney House, 19, Poole Road
1914	Greves, Stanley S. Hyla	,, ,,
1917	Griffiths, Capt. David	Bakrota, 82, Belle Vue Road, Southbourne
1917	Grindley, Miss E.	Riverbank, Brockenhurst

H

1923	Haigh, Aubrey Edward	Exhall, 20, Christchurch Road
1919	Hall, J. T., L.D.S., R.C.S.	Stoke Prior, 25, Poole Road
1924	*Hall, L. Beeching,* F.L.S.	Lingdene, King's Avenue, Parkstone

1922	Hallowes, Mrs. F. S.	5, Bodorgan Road.
1922	Hamilton, Miss E. G.	12, Oxford Avenue, W. Southbourne.
1923	Harbit, Ralph A.	12, Hathaway Road, Southbourne
1923	Harding, Ralph	3, Portchester Road
1921	Hardwick, S.	57, Poole Hill.
1913	Harris, Miss K.	Trescott Grange, Harvey Road, Boscombe
1924	Harris, Miss M.	Sorrento, 19, Seaward Avenue
1924	*Harris, Mrs. E. B.*	7, Carysfort Road, Boscombe
1912	Harrison, Henry	Eden Lodge, 7, Surrey Road South.
1914	Hartley, Dr. J.	62, Portchester Road
1914	Hartley, Mrs.	,, ,,
1922	Hartley, J. A.	,, ,,
1921	Hassell, Miss A. C.	Avonwood, 20, Owls Road, Boscombe
1914	Hatton, Rev. C. O. S., B.A. (Camb.), F.L.S.	Hinton Vicarage, Christchurch
1921	*Elected an Honorary Member.	,, ,, ,,
1920	Hawes, Miss	The Moorings, 27, Nelson Road
1924	Hawley, Miss H. M.	Galloway Lodge, 27, Florence Road, Boscombe
1917	Haydon, Clement J.	Ben Veula, 29, West Cliff Road
1923	Hayman, Wm. Speed, M.B. (Lond.)	Thorncliffe, Queen's Park South Drive
1923	Hayman, Mrs.	,, ,, ,,
1923	Hayman, R. L.	,, ,, ,,
1923	Hayman, Miss M. S.	,, ,, ,,
1918	Haythorne, E. C. C.	Forest Lodge, Burton Road, Branksome Park
1924	Heard, Miss E. S.	Ballygarvan, Stevenson Crescent, Parkstone.
1924	Heath, Col. Edwd., C.M.G.	Ardmore Cottage, Ardmore Road, Parkstone
1919	Heathcote, Chas., F.R.I.B.A.	Charters House, Western Road, Branksome Park
1924	Hedley, Miss E. B.	Montana, 85, Ashley Road, Parkstone
1921	Hellyar, Miss E.	Cerne Abbas, 1, Belvedere Road
1921	Hellyar, Miss M.	,, ,,
1923	Hellyar, Miss M. R.	,, ,,
1917	Henderson, Miss A. J.	Springbank, 22, Fox Road, Greenock
1911	Henslow, Revd. Professor Geo., M.A., F.L.S., F.G.S.	Danehurst, 40, Branksome Wood Road
1918	*Elected an Honorary Member	,, ,,
1921	Heymann, B. M.	Greencroft, Alyth Road, Talbot Woods.
1921	Heymann, Mrs.	,, ,,
1923	Hill, Clarence Sharp	Northfield, Chigwell Road
1904	Hinton, Miss	Welcombe, Wilfred Road, Boscombe
1924	Hoare, Mrs. A.	Broxa, Surrey Road
1924	Hoare, Miss E.	7, Cambridge Road
1922	Holden, Rev. E. H., M.A.	9, St. Swithun's Road
1922	Holdom, Mrs. Edwd.	Cranfield, Mansfield Road, Parkstone
1910	Holmes, C. F.	Brackenwood, 37, Southern Road, West Southbourne
1909	Holmes, Mrs.	,, ,, ,,
1924	Holmes, Mrs. C. S.	San Remo, Carysfort Road
1911	Holmes, Miss S. C. M.	4, Beaufort Road, West Southbourne
1921	Homer, E.	Coniston, Broadstone
1922	Homer, Mrs.	,, ,,
1922	Homer, Miss I. V. B.	,, ,,
1922	Homer, Miss L. A. M.	,, ,,
1911	Homer, L. V. C.	Carron, 54, Southcote Road
1920	Horne, Miss J.	34, Alumhurst Road
1924	Howell, W. Rees	Cintra, 35a, Richmond Wood Road
1923	Howell, Mrs. Rees	,, ,, ,,

1923	Hoyer, Miss M. A.	Sandycroft, Birds Hill, Poole
1911	Hudson, F.	Peñarol, Parkstone
1911	Hudson, Mrs.	,, ,,
1924	Husey, Mrs.	Namouna, 25, West Cliff Road
1925	*Huxham, Mrs. E.*	32, Milton Road

I

1905	Ibbett, F. W., M.A.	Town Hall
1920	*Elected an Honorary Member.	,,
1923	Isaacs, Geo. Hy., B.A.	Hillsley, Caledon Road, Parkstone
1923	Isaacs, Mrs.	,, ,, ,,

J

1924	Jackson, Miss J. A.	Ferndale, 22, Walpole Road
1924	Jackson, Miss H. M.	,, ,,
1924	*Jackson, A.*	,, ,,
1924	*Jackson, Mrs. A.*	,, ,,
1921	Jackson, Mrs. Gidlow	64, Portchester Road
1922	Jackson, Wm., M.A., B.C.L., F.R.G.S.	Newleaf, 58, Wellington Road
1912	James, T. B.	Trevenen, Howard Road
1912	James, Mrs.	,, ,,
1920	James, S.	,, ,,
1911	Jeffery, T. J. P.	Meldon, Ormonde Road
1923	Jenkins, Miss B. M.	7, Talbot Avenue
1922	Jones, E. Marsden, F.L.S.	Church House, Potterne, Devizes
1922	Jones, Mrs.	,, ,,
1922	Jones, J. Williamson	Tyndal Lodge, Forest Road, Branksome Park
1908	Jones, W.	3, Granville Road, Boscombe
1905	Jones, W.	254, Old Christchurch Road

K

1910	Kay, A. J.	Valliscourt, 100, Lowther Road
1923	Kenrick, Miss M.	46, Alum Chine Road
1924	*Kenway, Miss A. M.*	Derwood, Kinross Road
1913	Killick, H. F.	Rawdon, 9, Marlborough Road
1919	Kilner, John	St. Mary's, Chessel Avenue
1916	Kilner, Miss E. M.	,, ,,
1919	Kilner, Miss R. M.	,, ,,
1919	Kilner, Miss S.	,, ,,
1920	Kingsmill, Miss A. T.	2, Campbell Road, Boscombe
1920	Kitching, Mrs.	Fernworthy, Brunstead Road
1922	Knight, J. W.	The Yews, 2, Leigham Vale Road, W. Southbourne

L

1919	Lacey, Howard	50, Wellington Road
1922	Lancaster, Walter	66, Herberton Road, W. Southbourne.
1918	Langley, Miss C.	96, Richmond Wood Road
1919	La Touche, Miss	Oakfield, Danecourt Road, Parkstone
1921	Latter, Mrs. A.	33, Portchester Road

1922	Lawden, F.	83, Christchurch Road, Boscombe
1922	Lawrence, Dr. Sidney C., M.B., Ch.B., D.P.H.	106, Richmond Park Road
1923	Lawrence, Mrs.	,, ,,
1918	Lee, E. Kenworthy	Rosebank, 39, Lansdowne Road
1919	Leech, Miss M. E.	Castle Bar, 32, Crabton Close Road, Boscombe.
1919	Leech, Miss M. M.	,, ,,
1924	Le Fleming, Miss F.	St. Margaret's, Wimborne
1924	*Legg, Mrs. A. E.*	4, Hinton Road
1910	Lendrum, Miss A. M.	San Remo, 13, Carysfort Road
1922	Lewis, Miss C. F.	Ashdean, 17, Florence Road, Boscombe
1918	Lindsay, Miss L.	Seathwaite, Sandringham Road, Parkstone
1903	G o*Linton, Rev. E. F., M.A., F.L.S.	The Cottage, 79, Belle Vue Road, Southbourne
1922	Littleboy, Miss E. S.	2, Bodorgan Manor, 12 Bodorgan Road
1923	Littlewood, Engineer Capt. A. W., R.N., retd., O.B.E., Chevalier Legion of Honour.	Hawthorns, Queen's Grove, Parkstone
1922	Logan, T. T.	10, Argyll Road, Boscombe
1916	Logan, Mrs.	,, ,,
1922	Logan, Miss G. M.	,, ,,
1922	Logan, Miss S. M.	,, ,,
1924	*Longbottom, F.W.*, F.R.A.S.	Haslemere, Penrith Road, Boscombe
1922	Longstaff, Mrs. T. G.	Picket Hill, Ringwood
1920	A Love, Wm. J. E.	St. Clement's School House
1924	Luard, Miss J.	Fairthorn, 17, Bodorgan Road
1903	o Lupton, Miss	Bolingbroke, Knole Road
1909	Lyon, Claude	9, Hengist Road

M

1908	A Mackay, Miss	8, King's Park Road
1911	McBean, Miss J.	Inglenook, 29, Parkwood Road
1909	McBean, Miss S.	St. Michael's, Buxton
1923	McDonald, Miss M.	Heatherfield, 15, Gerald Road
1920	Male, H. C., M.D., M.R.C.S.	35, Irving Road, W. Southbourne
1922	Mangin, Saml. Hy.	Burton, Christchurch
1905	*Markwick, Col. E. E., C.B., C.B.E., F.R.A.S.	The Knowle, West Moors, Dorset
1917	Marston, Miss G.	Bourne Hall Hotel
1913	Martin, Miss F. G.	32, Southbourne Road
1923	Martin, W. H. N.	Castlemount, Glenair Road, Parkstone
1925	*Mason, Mrs. F.*	The Anchorage, Hathaway Road, Southbourne
1921	Massingberd, A. K.	17, West Cliff Road
1921	Massingberd, Miss A. A.	,, ,,
1914	Mate, Sidney J.	10, Landseer Road
1921	Mate, Mrs.	,, ,,
1918	Matthews, Mrs. J. P.	The Bungalow, Lascelles Road, Boscombe
1921	Mattocks, Mrs. E. C.	Meyrick Cliffs Hotel, Beacon Road
1922	Mattocks, T. E. T.	,, ,, ,,
1925	*Mee, D. E.*	99, Richmond Wood Road
1925	*Mee, Mrs.*	,, ,,
1925	*Miles, Miss*	21, King's Park Road
1922	Moore, Major Thos. C., I.M.S.	Verwood, Dorset
1919	Moorhead, Mrs.	Brightlands, 34, Crabton Close Road

1908†	*Morris, Sir Daniel, K.C.M.G., J.P., M.A., D.SC., D.C.L., LL.D., F.L.S.	14, Crabton Close Road
1911	Morris, Lady	,, ,,
1925	*Morris, Miss E.*	Ardmore Lodge, Ardmore Road, Parkstone
1921	Morse, Chas. G. H., M.A., M.R.C.S.	Sherborne, Chessel Avenue
1922	Morse, Mrs. A. Y.	,, ,,
1922	Morse, F. A.	,, ,,
1908	Moss, Miss	The Grange, 52, Westby Road
1924	*Moulson, Miss R.*	20, St. Stephen's Road

N

1919	Nankivell, B. W., M.R.C.S., (Eng.), L.R.C.P. (Lond.).	Woodstock, 2, West Cliff Road
1922	Nanson, Mrs. C.	2, Grand Avenue, W. Southbourne
1903	oNeale, J., B.A.	Clonenagh, 7, Montague Road, W. Southbourne
1910	Neale, Mrs.	,, ,, ,,
1919	Neale, Miss J.	,, ,, ,,
1912	Neave, Miss	Lingdale, 73, Lansdowne Road
1921	Neve, Miss G.	Coolavin, 18, Hawkwood Road
1925	*Newman, Mrs. C. A.*	Harewood, 17, Dean Park Road
1921	Ninnes, Geo. I.	St. Ives, Watcombe Road, West Southbourne
1914	Norton, John J., J.P.	Ashton Court, Branksome Park
1914	Norton, Mrs.	,, ,,

O

1920	Oaten, Mrs.	19, Sunnyhill Road, W. Southbourne
1922	AOdell, Miss M. E., B.SC.	Sandecotes School, Parkstone
1924	*O'Hara, Mrs. M. S.*	7, Carysfort Road
1910	Oke, A. W., B.A., LL.M., F.G.S., F.S.A.	32, Denmark Villas, Hove, Brighton
1924	Ormrod, T. B.	20, Knole Road
1920	Osborne, John H.	Woodside, Kinson
1920	Osborne, Mrs.	,, ,,
1920	Osborne, Eric A.	,, ,,
1922	Ousby-Trew, Rev. C., M.A.	Overthorpe, 19, Florence Road, Boscombe
1922	Ousby-Trew, Mrs.	,, ,, ,,
1922	Ousby-Trew, Miss	,, ,, ,,

P

1903	oPainter, Hubert, B.SC	29, Talbot Road, Winton
1904	Painter, Mrs.	,, ,,
1924	*Paris, Alexander*	Coulmore, 2, Brookvale Road, Southampton
1923	Park, James	Broughty Ferry, 34, Sea Road, Boscombe
1919	Parker, Jas. A. D.	22-23, Chiswell Street, London, E.C. 1.
1919	Parker, Miss M.	The Cliff, 13, Southwood Avenue, W. Southbourne
1924	Pattinson, Dr. T. W.	4, Meadway Court, Hampstead Garden Suburb, N.W. 11.
1924	Pattinson, Mrs.	,, ,, ,, ,,

1922	Peek, Bertrand M., M.A., F.R.A.S.	Gorse Cliff School, 8, Boscombe Spa Road
1923	Peel, F. W.	13, Portarlington Road
1924	*Pells, J.*	9, Stokewood Road
1915	Penrose, F. G., M.D., F.R.C.P., F.Z.S., M.B.O.U.	Woodbury, 9, Grove Road, East Cliff
1916	Penrose, Mrs.	,, ,,
1916	Penrose, Miss F.	,, ,,
1916	Penrose, Miss M.	,, ,,
1912	Pestell, Miss	Engelberg, 92, Surrey Road
1911	Phillips, Mrs.	21, McKinley Road
1921	Phillips, Rev. C. A.	Walton House, Richmond Hill
1921	Phillips, Miss C. E.	,, ,, ,,
1912	Philpott, Mrs.	58, Barkstone Gardens, S. Kensington, S.W. 5.
1920	Pilkington, Mrs. K. C. S.	The Steyne, 9, Manor Road
1920	Pilkington, Miss K. D.	,, ,,
1920	Pilkington, Miss L. D.	,, ,,
1914	Pollock, Mrs.	Stoneleigh, Old Dover Road, Canterbury
1921	Pontifex, R. D.	Dalton House, 68, Christchurch Road
1921	Pontifex, G. K. D.	,, ,,
1920	Pontifex, Mrs. Dalton	,, ,,
1922	Potter, H.	19, Studland Road
1911	Pullman, A.	Wonersh, Hathaway Road, Southbourne
1918	Punch, Cyril	60, Wellington Road

Q

1922	Quick, Richd., F.S.A. (Scot.), M.J.S.	Russell-Cotes Art Gallery and Museum
1924	*Quick, Mrs.*	,, ,, ,,

R

1923	Radford, Miss A.	46, Alum Chine Road
1912	Rankin, W. Munn, M.SC. (Leeds), B.SC. (Lond.)	Municipal College, Burnley, Lancs.
1920	*Elected an Honorary Member	
1916	Rankin, Mrs. Munn	Stoneleigh, Heron Court Road
1917	Ranshaw, Miss E. M.	9, Warren Road
1918	Ratcliffe, Mrs.	Brooklands, 32, Branksome Wood Road
1924	Ray, Miss I. E.	Mizpah, 35, Nelson Road
1919	Rayner, Miss F.	The Homestead, 9, St. John's Road, Boscombe
1905	*Rayner, J. F., F.R.H.S., M.B. MYC. SOC.	Swaythling, Southampton
1922	Rebbeck, Sub.-Lt. L. E.	Stafford Lodge, 26, Dean Park Road
1922	Rebbeck, Major Thos. Victor	Chota Koti, 7, Stoke Wood Road
1924	Redman, Mrs. J.	19, Milton Road
1923	Reeves, Miss S., M.B.E.	St. Cross, 13, Bodorgan Road
1924	*Reid, Mrs. E. M., B.SC., F.L.S.	Pinewood, Milford-on-Sea
1922	Rentoul, Miss E.	Brightlands, 34, Crabton Close Road, Boscombe
1920	Restall, W. T.	26, Seaward Avenue, W. Southbourne
1919	Richards, Miss E., E. B.SC. (Lond.)	West Cliff Towers, 12, Priory Road

1922	Riding, Miss M.	Glengarry, 46, Drummond Road
1916	Roberts, Hy. Astley, B.A. (Lond.)	Shalvah, Wilfred Road, Boscombe Manor
1918	Roberts, Mrs.	,, ,,
1924	Roberts, Mrs. J.	Aysgarth, 16, Poole Road
1924	Roberts, Mrs. W. F. M.	19, Florence Road, Boscombe
1924	*Robertson, W. G. A.*, M.D., F.R.C.P. *Edin.*, F.R.S. *Edin.*, F.S.A.S.	St. Margaret's, Keswick Road, Boscombe
1921	Robins, Miss E.	11, Richmond Wood Road
1923	Roden, Miss E. M.	14, Campbell Road Boscombe
1920	Rogers, Miss C. M.	4, Hengist Road
1905	Rogers-Barns, Miss	Vergers Mead, Corfe Castle
1914	Rooke, Miss S. G.	Norbury, 53, Paisley Road
1914	*Roper, Miss Ida M., F.L.S.	4, Woodfield Road, Redland, Bristol
1922	Rosling, Alfred W.	85, Wimborne Road
1922	Rosling, Mrs.	,, ,,
1922	Rosling, Miss D. M.	,, ,,
1922	Rosling, Miss M. G.	,, ,,
1916	Rothwell, Mrs.	Mellstock, Montague Road, W. Southbourne
1913	Russell-Cotes, H. V. M.	8, Meyrick Park Crescent
1916	Ryley, S. Clement, J.P.	The Square, Wimborne

S

1924	*Sanders, Miss E. E.*	c/o Miss M. Parker, 13, Southwood Avenue
1919	Savage, J. W.	12, Pinecliffe Avenue, W. Southbourne
1922	Savery, Wm. H., J.P., C.C.	6, Owl's Road, Boscombe
1912	Scarlett, Miss A.	Fermoy, 4, St. Alban's Avenue
1912	Scarlett, Miss K.	,, ,,
1912	Scarlett, Miss M.	,, ,,
1908	AScattergood, J.	Alma Road Council School
1914	Scholes, Denton	The Holme, 16, Cambridge Road
1915	Scholes, Mrs.	,, ,,
1922	Scholes, Raymond Denton	,, ,,
1922	Scholes, Miss V. O. M. Denton	,,
1921	Schott, Miss H. C., M.R.I., F.R.G.S.	The White Cottage, 1, Southern Road, W. Southbourne
1924	*Scorfield, Miss*	7 McKinley Road
1919	Scott, G. B., C.I.E.	Glencoy, 80, Surrey Road
1924	Scott, H. V.	Homelands, 38, Poole Road, Branksome
1904	Scott, J. H., M.E., M.I.M.C.E.	Kirkby, 22, Linwood Road
1905	Scott, W. H., M.A.	Hendall, 15, Herbert Road
1916	ASeeviour, G. C., A.C.P., F.R.H.S.	St. Peter's School House
1914	Sharp, Chas.	Langdon, Parkstone
1919	Sharp, Miss E.	,, ,,
1919	Sharp, Miss F.	,, ,,
1923	Shaw, Mrs. P.	Highlands, Howard Road
1923	Sherrin, T. M., M.A.	5, Landseer Road
1903	G o Sherring, R. Vowell, F.L.S.	Hallatrow, near Bristol
1907	Sherring, Miss O. L.	,, ,,
1916	Simpson, Rev. E. J. Douglas, M.A.	Maesbury, 3, Cavendish Road
1920	Simpson, Norman Douglas, B.A., F.R.M.S., F.L.S.	,, ,,
1918	Smith, Horace, M.A., M.D., (Cantab.)	Sunnyhurst, 7, Dean Park Road
1918	Smith, Miss M. A.	Woodside St. Alban's Crescent

1918	Smith, T. Templeton, B.SC.	Pine Glen, 7, Spencer Road
1918	Smith, Mrs.	,, ,,
1924	Smith, Miss E. E.	Watford, St. John's Avenue, Boscombe
1924	Smith, Miss Harvey	49, Iddesleigh Road
1923	Smith, Mrs. E.	Woodcroft, Gervis Road East
1923	Smith, Miss L.	C/o Lloyds Bank, Lower Parkstone
1914	Smyth, W. Johnson, M.D. (Edin.)	Pirbright, West Cliff Gardens
1922	Smyth, Mrs.	,, ,,
1922	Smyth, Miss M.	,, ,,
1923	Smyth, Miss Cathleen	27, Spencer Road
1912	Smythe, J. H. Ralph, J.P.	Willstead, 22, Cavendish Road
1915	Smythe, Mrs.	,, ,,
1920	Smythe, Miss D.	,, ,,
1916	Smythe, Miss K. M	,, ,,
1919	Snell, Dr. Sidney Herbert	Purewell Hill, Christchurch
1919	Snell, Mrs.	,, ,,
1919	Snell, Miss M.	,, ,,
1924	Snell, Miss W.	,, ,,
1912	Solly, Rev. Hy. Shaen, M.A.	5, Denewood Road
1922	Solly, R. Harrison, M.A.	Kingscote, 6, Berkeley Road
1921	Sowton, Miss E. M.	57, Southbourne Road, W. Southbourne
1922	Speakman, M. M.	13, Milton Road
1922	Speakman, Mrs. E.	,,
1909	Spencer, J. F.	Glenthorne, 73, Richmond Park Road
1917	ASpry, Miss A. G., LL.A.	12, Sunnyhill Road, W. Southbourne
1923	Stables, A. D.	Saxthorpe, St. Osmund's Road, Parkstone
1923	Stables, Mrs.	,, ,, ,,
1921	Starr, E. J., L.C.P.	Merly Tower, 15, Knole Road
1925	Starr, Col. W. H., C.B., C.M.G., C.B.E.	Nikko, Foxholes Road, Southbourne
1921	Stevens, Chas. S.	Goodwin, Howard Road
1923	Stevens, Mrs.	,, ,,
1916	Stiff, Sydney Jas., B.SC.	Norden House, Corfe Castle
1916	Stiff, Mrs. F. L.	,, ,,
1916	Stiff, Miss M. J.	,, ,,
1921	Stigant, Miss E.	11, Gerald Road
1922	Stone, Mrs.	Fordwich, Brunstead Road
1922	Stone, Miss E. E.	,, ,,
1920	Stoney, Miss F. A., O.B.E. M.D., B.S.	Ardvoulan, 29, Poole Road
1924	*Story, F. N.*	Storyland, Church Road, Southbourne
1924	*Story, Mrs. E. F.*	,, ,, ,,
1924	Strachan, Wm., F.R.A.S.	30, Tregonwell Road
1924	*Strachan, Mrs.*	,, ,,
1925	*Strachan, Lt.-Col. E. A.*	Moorfield, 1, Bodorgan Road
1925	*Strachan, Mrs. B. S.*	,, ,,
1923	Sturges, Rev. T. W., M.A.	64, Drummond Road
1918 G	*Sumner, Heywood, F.S.A.	Cuckoo Hill, South Gorley, Fordingbridge.
1911	Swain, H. E.	Sorrento, Studland Road
1922	*Elected an Honorary Member	
1906	Swallow, E.	York Cottage, Ravine Road, Canford Cliffs
1922	ASymes, H., M.A.	29, Grand Avenue, W. Southbourne

T

1918	Tanner, Mrs. Edwd.	33, Alumhurst Road
1911	Tatchell, Leonard, F.E.S.	Swanage, Dorset

1915	Taylor, F. B., B.A. Camb.	Claregarth, Montague Road, W. Southbourne
1916	Taylor, Mrs.	,, ,,
1916	Taylor, Miss M. A.	,, ,,
1916	Taylor, Miss M. W.	,, ,,
1921	ATHackeray, Miss E. E.	4, Pine Tree Glen
1923	Thill, J. A.	8, Colville Road, Boscombe
1923	Thill, Mrs.	,, ,,
1924	Thompson, Jas. H.	12, Grand Avenue, West Southbourne
1924	*Thompson, Mrs. H. E.*	,, ,, ,, ,,
1918	Thomson, Alfred S.	Sunnybrae, East Avenue, Talbot Woods
1922	Thomson, A. W. Ferguson	Ailsa, Erpingham Road
1911	Thomson, Mrs. Roberts	Monkchester, 17, Manor Road
1919	Thoroton, Rev. E. W.	Hill House, Spencer Road, Canford Cliffs
1911	Tickell, Miss S. M.	Pinewood, 56, Stourcliffe Avenue, W. Southbourne
1921	Tolson, Miss A.	Brandwood, Commercial Road, Parkstone
1921	Tolson, Miss L. R.	,, ,, ,,
1921	Tolson, Miss M.	,, ,, ,,
1920	Townesend, Mrs. G. B.	31, Hamilton Road, Boscombe
1911	Towsey, Miss E. L.	10, Ophir Road
1920	ATroath, W.	Langley, 55, Chatsworth Road
1911	Turner, J. E.	Bramley, 94, Surrey Road
1923	Turpin, Miss A.	Sorrento, 19, Seaward Avenue, W. Southbourne
1914	Twemlow, Miss E. F	Devon Lodge, 83, Alumhurst Road

U

1923	Uhthoff, J. C., M.D., F.R.C.S.	7, Branksome Wood Road
1923	Uhthoff, Mrs.	,, ,,
1923	Uhthoff, Miss C.	,, ,,
1923	Uhthoff, Miss R.	,, ,,
1923	Ure, Mrs. J. G.	19, Talbot Avenue

V

1913	Veale, Miss A. G.	2, Richmond Park Crescent
1923	Veale, Miss B.	,, ,,
1923	Veale, Miss C. M.	,, ,,
1923	Veale, Miss L. H.	,, ,,
1924	*Veale, Miss C.*	Merlewood, 20, Braidley Road
1924	*Veale, Miss M. E.*	,, ,,
1908	Vernon, Lieut.-Col., A H., L.R.C.P., F.R.C.S.	1, Carnarvon Crescent, Boscombe
1918	Vickers, Herbert U.	32, Lowther Road
1918	AVorse, John	School House, Hinton Admiral, Christchurch

W

1903	G o*†Waddington, H. J.	Moreton, 107, Lowther Road
1918	*Elected an Honorary Member	
1924	AWadlow, H. J.	Clarendon, North Road, Parkstone
1916	Walby, A. E.	Netherton, 2, Dean Park Road

1921	Wales, Miss	The Nook, 4, Ormonde Road, Branksome Park
1921	Wales, Miss N.	,, ,, ,, ,,
1918	Walker, Robt. S.	Ellesborough, Ormonde Road, Branksome Park
1921	Walker, Miss Royston	17, Portman Crescent, W. Southbourne
1913	Wallace, W. G.	Doveshill Cottage, Ensbury Mount
1912	Walter, Mrs. G. P.	Rusholme, 10, St. Anthony's Road
1923	Walter, Thos. James	101, Lowther Road
1920	Wanstall, Wm. S.	Del Monte, 6, Roslin Road
1920	Wanstall, Mrs.	,, ,,
1924	*Ward, Jas.*	Kya Lami, St. Ledger Road
1905	Waters, A. W., F.L.S., F.G.S.	Alderley, 2, McKinley Road
1906	Waters, Mrs.	,, ,,
1923	Watts, Wm. Hy.	4, Stourwood Avenue, W. Southbourne
1918	Webb, Mrs. Nasmyth	Bibury, Wilderton Road, Branksome Park
1914	Webber, A. E.	28, Tower Road, Boscombe
1909	Webster, Rev. T. S.	Devonia, Glenmore Road
1917	Webster, Mrs.	,, ,,
1920	Wells, Rev. Edwd., M.A.	Glen Roy, 22, Studland Road
1924	West, Miss M. G.	Larnaca, 23, Argyll Road, Boscombe
1913	Wetherell, Miss M.	Triana, 21, Harvey Road, Boscombe
1920	Wetherell, Miss S.	,, ,, ,,
1918	Whitaker, S.	22, Somerset Road, Boscombe
1924	Whitaker, S. E., M.S.A.	22, Selwood Road, Addiscombe, Croydon
1924	Whitaker, Miss E. M.	Weirfields School, Taunton
1920	White, J. R., M.A.	Whitecot, 15, Linwood Road
1920	White, Mrs.	,, ,,
1921	White, Mrs. E. Sinclair	70, West Cliff Road
1922	Whittaker, H.	Wheaton Lodge, 16, Branksome Wood Road
1922	Whitting, A.	83, Poole Road
1920	Whittle, Mrs. E.	Doveshill Farm, Ensbury Mount, Bournemouth
1916	Whyte, A. C.	Byberry, 5, Roslin Road
1916	Whyte, Mrs.	,, ,,
1916	Whyte, Miss M. C.	,,
1916	Whyte, Miss M. N.	,, ,,
1923	Wickenden, Miss F.	Boscombe Spa Hotel, Boscombe
1920	Willes, Mrs.	Elmwood, Cranborne Road
1919	Williams, John	Brynmill, 68, Southcote Road
1924	AWillis, Miss G. H.	116, Paisley Road, West Southbourne
1917	Wingfield, T. R.	12, Suffolk Road
1914	Wood, W. H.	Arosa, Tower Road, Branksome Park
1920	Woodhouse, Rev. A. P.	Deanhurst, 5, Littledown Road
1905	Woodhouse, W. J., A.C.P., M.I.H.	35, Chatsworth Road, Malmesbury Park
1918	Woodhouse, Mrs.	,, ,, ,,
1923	Woodhouse, Wm. Reginald	,, ,, ,,
1923	Woodhouse, Miss M. M.	,, ,, ,,

Y

1924	Yates, Rev. A. G., M.A., R.N.	14, Wellington Road
1924	*Yates, Mrs. E. F.*	,, ,,
1924	*Yates, Miss E. M. M.*	,, ,,
1917	AYoung, Miss A.	6, Salisbury Road, Boscombe

RULES OF THE
Bournemouth Natural Science Society.
Amended 11th October, 1924.

Title

1.—The title of the Society shall be THE BOURNEMOUTH NATURAL SCIENCE SOCIETY.

Objects

2.—The objects of the Society shall be:

(*a*) The promotion of the study of Science in all its branches, by means of Lectures, Field Meetings, the Reading and Discussion of Papers, the formation of Sections of its members devoted to any particular branch of the Society's work, and in any way that the Council of the Society shall deem advisable.

(*b*) The making of reports on any animal, plant, or object of interest, and the carrying out of the recommendations contained in such reports.

Members

3.—The Society shall consist of Ordinary, Life, Honorary and Associate Members.

Ordinary Members

4.—Ordinary Members shall pay an Annual Subscription of One Pound, due on the first day of October in each Year. The inclusive Annual Subscription for Adult Members of the same family, not exceeding four and residing in the same house, shall be Two Pounds, each Member being elected in the usual manner and each receiving a card of membership. Persons living outside a radius of six miles from the Square at Bournemouth may be elected Country Members, and pay one half the above rates of subscription.

Life Members

5.—The Subscription for Life Members shall be Ten Pounds. Any Ordinary Member who shall have commuted his Subscription, as provided for in this Rule, shall become a Life Member, but shall not by reason thereof have any rights differing from those of an Ordinary Member.

¶ Rules 5a and 5b referred to in the Trust Deed are Rules 19 and 20.

Honorary Members

6.—Any person distinguished in Science or who has rendered any special service to the Society, may be elected an Honorary Member. Honorary Members shall be proposed and elected in the same way as Ordinary Members. The number of Honorary Members shall be limited to twenty.

Associate Members

7.—Persons may be admitted Associate Members by the Council on account of their scientific attainments or because they are likely to prove useful working Members of the Society. This privilege will usually be granted to School Teachers.

The annual subscription for Associate Members shall be seven shillings and sixpence. They shall be entitled to all the privileges of Membership except that they shall have no power of voting on the affairs of the Society or of holding office.

Proposal and Election of Members

8.—The Ordinary, Life, and Associate Members of the Society shall be proposed by a Member to whom they are known personally or to whom they have presented adequate credentials, and seconded by another Member, and the proposal, in the form following these Rules, shall be sent to the Honorary Secretary. The name of any such proposed new Member shall be posted on the Notice Board of the Society for a period of not less than seven days, after which such name shall be voted upon at the next ensuing Council Meeting, and if two-thirds of the Council present and voting shall vote for the proposed New Member, such Candidate shall become a Member upon payment of the Annual Subscription and shall receive a Card of Membership which is not transferable. Any Member joining during August or September shall receive a Card of Membership to September 30th of the following year without further payment.

Unpaid Subscriptions

9.—Any Members whose subscriptions are unpaid at the end of the financial year (September 30th), after notice in writing to that effect has been given to them by the Honorary Treasurer, shall be reported to the Council, which shall have the power of removing their names from the list of members.

Resignations

10.—Resignations must be in writing and addressed to the Honorary Secretary. Members are liable for all subscriptions which may have fallen due prior to the date of resignation.

Executive Officers.

11.—The Executive Officers of the Society shall be the Chairman of Council, the Deputy Chairman of Council, Honorary Treasurer, and Honorary Secretary.

The President

12.—The President shall be elected annually and need not necessarily be selected from Members of the Society. He shall be invited to deliver an Address at as early a date in the Winter Session as can be arranged.

Vice-Presidents

13.—Any Member of the Society who, in the opinion of the Council, has rendered distinguished service to Science or to the Society, shall be eligible for election as a Vice-President at the Annual Meeting and, if elected, shall retain office as long as he remains a Member of the Society.

Chairman of General Meetings

14.—The President or a Vice-President shall take the Chair at all General Meetings other than the Annual and Special Meetings. At these the Chairman of Council or Deputy Chairman shall preside.

Honorary Secretary

15.—The Honorary Secretary shall perform all the usual secretarial work, shall keep minutes of all Council Meetings, and of the Annual and Special Meetings, and make a synopsis of all other General Meetings. He shall cause the agenda of the Annual and Special Meetings to be sent to every Member seven days at least before each such Meeting. He shall make all preparations for General Meetings and General Excursions, in respect of which he shall collect from each Member his share of the expenses, and therefrom defray all costs of the Meetings or Excursions. Any surplus of such collections shall go to the General Fund, and any deficit be defrayed out of that Fund. He shall keep an account of all out-of-pocket expenses. He shall give notice of their election to all new members, and register the Sections, if any, to which they ask to belong. He shall furnish copies of the Annual Reports published during their membership, to all Members who have paid their subscriptions, to Honorary Members, and to such Scientific Societies as the Council may from time to time appoint to receive them.

Honorary Treasurer

16.—The Honorary Treasurer shall have the custody of the General Funds of the Society. He shall receive and acknowledge all Subscriptions, and shall issue tickets of Membership to all persons who are duly elected and have paid their Subscriptions. He shall bring before the Council any accounts that are due for payment. He shall prepare a financial Statement at the end of each Financial Year to be presented to the Council at the Meeting next preceding the Annual Meeting. After presentation of the Financial Statement to the Council, he shall submit it to the Auditors and lastly to the Annual Meeting of the Society.

Council

17.—There shall be a Council of the Society consisting of the Vice-Presidents who have filled the office of President, the Honorary Treasurer, the Honorary Secretary, the Honorary Librarian, the Honorary Editor, the Honorary Curator, the Chairmen of Sections, not more than ten Members elected by the Society and not more than two co-opted Members.

18 (*a*).—The Council shall have the general management of the Society and the control of its funds. At all Meetings of the Council, five shall form a quorum. The Council shall elect its own Chairman and Deputy Chairman for the Year, shall have power to fill up vacancies in its number, and to co-opt not more than two additional

members. The Council shall have power to appoint Committees to deal with any business that may be delegated to them.

(*b*) The Chairman, or in his absence the Deputy Chairman, shall have an original and a casting vote at all Meetings of the Council.

(*c*) The Council shall arrange all Lectures, Papers, Demonstrations and Exhibitions of Specimens, etc., for the General Meetings and Excursions of the Society, and shall approve of all arrangements for Sectional Meetings and Excursions before they are included in the monthly programme.

(*d*) If any elected or co-opted member of the Council shall fail to attend four consecutive Meetings of the Council, his seat shall become vacant unless the Council shall decide otherwise.

Trustees

19.—The property of the Society shall be vested in Trustees who shall be elected by the Council. The number of Trustees shall be not more than nine or less than three, and they shall respectively hold office until death or resignation, unless removed from office by a resolution of the Council. The Trustees shall from time to time deal with the property of the Society as directed by resolution of the Council (of which an entry in the minute book shall be conclusive evidence), and they shall be indemnified against all liability whatsoever out of the property for the time being of the Society.

¶ This Rule is referred to in the Trust Deed as Rule 5a.

Borrowing Power

20.—If at any time the Society in general meeting shall pass a resolution authorising the Council to borrow money, the Council shall thereupon be empowered to borrow for the purposes of the Society such amount of money, either at one time or from time to time, and at such rate of interest, and in such form and manner, and upon such security as shall be specified in such resolution, and thereupon the Trustees shall make all such dispositions of the property of the Society or any part thereof, and enter into such agreements or arrangements in relation thereto, as the Council may by resolution direct for giving security for such loan or loans and interest thereon at the agreed rate. All members of the Society, whether voting on such resolution or not, and all persons becoming members of the Society after the passing of such resolution shall be deemed to have assented to the same as if they had voted in favour of such resolution.

¶ This Rule is referred to in the Trust Deed as Rule 5b.

Visitors

21 (*a*).—A Member may introduce friends who accompany him to all parts of the Society's premises except those which are let or in use for a Lecture or Meeting. The Member must enter the names and addresses of such Visitors in the Visitors' Book and sign the entry. Strangers cannot be admitted on presenting a Member's card or letter.

(*b*) A Member may introduce two Non-Members, who accompany him, to any Lecture or Excursion of the Society, but no Non-Member may be thus introduced to more than two Lectures in the Winter Session and two Excursions in the Summer Session, even though introduced by different Members. In the case of Lectures, the introducing Member must enter the names and addresses of the Visitors in the Visitors' Book and sign the entry. In the case of Excursions, the introducing Member must send the names and addresses to the Organiser of the Excursion.

(*c*) A Member introducing a Visitor is responsible for ascertaining that the Visitor has not been introduced twice previously in that Session and also that the privilege is not used for commercial purposes.

(*d*) A Visitor to Bournemouth may, with the approval of the Council, be granted a ticket enabling him to attend the Meetings and Excursions of the Society for a period not exceeding six months at a charge of Fifteen Shillings.

(*e*) The Council shall have power to extend the hospitality of the Society to distinguished Visitors.

(*f*) The Council shall have power temporarily to alter or suspend this Rule or any part of it.

Charges for Meetings

22.—The Council shall have power to make a charge to Members for admission to any Meeting the holding of which involves special expenses, and may arrange for the admission of Non-Members.

Expulsion

23.—The power of expulsion of a Member from the Society for objectionable conduct shall be vested in the Council and exercised at a Special Meeting called for that purpose. Notice of the proposed expulsion must be given on the circular convening the Meeting. The expulsion must be carried by a majority of two-thirds of those present.

The Member affected shall have power to appeal to a General Meeting of the Society to act by the like majority.

The Annual and Special Meetings

24 (*a*).—The Annual Meeting shall be held in the month of October.

(*b*) At this Meeting the President, the Chairmen of Sections, the Honorary Treasurer, the Honorary Secretary, the Honorary Librarian, the Honorary Editor, the Honorary Curator, not more than ten Members of Council and two Auditors for the ensuing year shall be elected, either Auditor having the power to audit the accounts in the absence of the other.

(*c*) At this Meeting the Council's Report for the past year, and the Honorary Treasurer's statement of accounts duly signed by the Auditors, shall be submitted.

(*d*) Notice convening an Annual or Special Meeting, together with the agenda and details of any proposed alterations in the Rules, shall be given to Members at least seven clear days before such Meeting is held. Notice of General Meetings shall be given at least seven clear days beforehand.

(*e*) On a written Requisition, signed by at least ten Members of the Society, the Council shall call a Special Meeting to consider any question as to the affairs of the Society, such Meeting to be called within three weeks of the Council Meeting next following the receipt by the Honorary Secretary of the Requisition, and at least seven clear days' Notice shall be given to the Members. At such Meeting no other business than that mentioned on the Requisition, and on the notice convening such Meeting, shall be considered.

(*f*) At the Annual Meeting and at all Special Meetings of the Society, not less than twenty-five Members shall form a quorum.

Sections

25 (*a*).—The Council shall have power to form a Section for the study of any special subject deemed within the scope of the Society's work, and shall appoint the Chairman for the first year.

(*b*) The Chairman of each Section shall appoint a Secretary for the Section, who, in addition to the ordinary secretarial duties, shall keep a list of the Members of the Section.

(*c*) A Section shall consist of those Members who have signified to the Honorary Secretary or the Secretary of the Section their wish to belong to that Section.

(*d*) The Members of each existing Section shall, at a Meeting held before the last week in July in each year, nominate the Chairman of the Section for the ensuing year to come into office after the Annual Meeting. The Secretary of the Section shall send such Nomination to the Honorary Secretary in time to present it at the Council Meeting held on the last Monday in July.

(*e*) If the Council approve of the Nomination, it shall recommend the person nominated for Election at the Annual Meeting, otherwise it shall refer the matter back to the Section. In the event of a Section failing to nominate a Chairman, the Council shall have the right to do so. The final Election shall take place at the Annual Meeting.

(*f*) At the request of the Sectional Chairman the Secretary of a Section may attend Meetings of the Council, but without the power of voting .

(*g*) Each Sectional Chairman shall be responsible for the preparation and arrangement of each Sectional Meeting and Excursion, and shall furnish details of the same to the Honorary Secretary for submission to the Council. At the end of each Session he shall render to the Honorary Treasurer an account of his receipts and payments for the Section.

(*h*) A Minute Book for each Section shall be kept in which shall be entered details of the Section's work and an account of all Sectional Meetings, with the number of Members attending and notes on any matters of interest observed or discussed. Such book shall be submitted to the Council whenever required. The Chairman of each Section shall send to the Honorary Secretary a report of the Section's work for the year in time for it to be epitomised in the Council's Report to the Annual Meeting.

26.—Alterations in the Rules must be sanctioned by a majority of not less than two-thirds of the Members present and voting at the Annual Meeting, or at a Special Meeting called for that purpose, and no alterations shall otherwise be made. Alterations in Rules

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To the Honorary Secretary,

Bournemouth Natural Science Society,

39, CHRISTCHURCH ROAD, BOURNEMOUTH.

Dear Sir,

I beg to propose that

M.....

(Please give Christian name in full, and state title—Mr., Mrs., Miss, etc., and any degrees or qualifications.)

Address..... .....

.....

**who is personally known to me*
**who has produced satisfactory credentials to me* *be elected an* **Ordinary* **Associate*

Member of the Society.

Date..... *Member's Signature* .....

I beg to second the above proposal

Date..... *Member's Signature*.....

*Delete word not applicable. See extract from Rules on reverse of this form.

Annual Meeting, 1924.

THE TWENTY-FIRST Annual Meeting was held at 39, Christchurch Road, on Saturday, October 11th, at 3 p.m. Mr. J. H. Ralph Smythe, J.P., was in the chair. Seventy-six members were present.

The Chairman, in opening the meeting, commented on the very satisfactory state of affairs and remarked that it was due to the steady and continuous work of the Council, the Chairmen of Sections and the Officers.

The minutes of the last Annual Meeting having been read, the Council's Report for the past year was read. It recorded that the year 1924 was memorable as completing the 21st year of the existence of the Society, and it also stated that the Members numbered 654.

The Hon. Treasurer then presented his Annual Statement of Accounts, showing Receipts £674 5s. 2d. with £195 9s. 0d. brought forward, together £869 14s. 2d.; Payments £626 19s. 4d., leaving a balance of £242 14s. 10d.

The adoption of the Report and Accounts was proposed by Surgeon Capt. Borrett, R.N., seconded by Mr. J. R. White, and carried.

It was proposed by the Chairman and seconded by Dr. Penrose, that the number of Honorary Members be limited to twenty, and this was carried.

A vote of thanks to the retiring President, Sir Fredk. Wm. Keeble, was proposed by Sir Daniel Morris, K.C.M.G., J.P., and seconded by the Rev. Edward Wells. Mr. Hubert Painter, B.Sc., F.C.S., was unanimously elected President of the Society for 1924-25 on the proposition of the Chairman, seconded by Dr. G. E. J. Crallan. Mr. Painter, expressing thanks for the honour conferred upon him, spoke of the keen interest he has always taken in the Society, of which he is an original member.

The Officers of the Society and the present Members of the Council, other than Chairmen of Sections, were re-elected.

The election of the Chairmen of Sections followed.

Colonel E. E. Markwick, C.B., C.B.E., F.R.A.S., having retired from the Astronomical Section, that Section was amalgamated with the Mathematical Section and Mr. B. M. Peek, M.A., F.R.A.S., was elected Chairman; Colonel J. R. Dodd, M.D., F.R.C.S., was elected Chairman of the Archæological and Historical Section in the place of the Rev. Hy. Shaen Solly, M.A.; and Mr. Henry Bury, M.A., F.L.S., F.G.S., Chairman of the Geological Section in the place of Mr. W. J. Woodhouse, the others being the same as last year.

The Hon. Secretary proposed the re-election of the Hon. Auditors, Mr. E. Bicker and Mr. C. H. Blackett, which was seconded by Mr. Geo. F. Gibbs, and a vote of thanks was passed to them for their valuable services for several years.

Sir Daniel Morris, K.C.M.G., J.P., then presented the Morris Gold Medal to Mr. Heywood Sumner, F.S.A., for 1924-25. He addressed Mr. Sumner and recounted the eminent services he had rendered to Science generally and to the Natural Science Society. He said: "Mr. Heywood Sumner, the Council of the Bournemouth Natural Science Society has this year awarded you the Morris Gold Medal in recognition of the valuable services rendered by you in making a critical survey of the Archæology of the Bournemouth, New Forest, and adjoining districts, and the interesting reports you have from time to time published on this subject. You first began your systematic investigations, both in Cranborne Chase and the New Forest, in 1902, when you came to live here and you modestly remark that the more you know of these investigations, the more there is to be known. A list of your contributions to Archæological knowledge has lately been compiled and I would briefly refer to them as follows:—

1913.—"The Ancient Earthworks of Cranborne Chase—a survey and record of the same, described and delivered in 46 plans and a map. (Chiswick Press, Took's Court, Chancery Lane).

1914.—"Excavations of Rockbourne Down, Hampshire. A record of the discovery and excavation of a Romano-British farm site. Professor Haverfield specially refers to this record in the British Academy Supplemental Papers, II. 1914, and reprinted two of the plans in illustration of his remarks. The coins found here (9) range from A.D. 353 to 375. (Chiswick Press.)

1917.—"The Ancient Earthworks of the New Forest. A survey and record of the same, described and delineated in 35 plans and 27 illustrations, and a map. (Chiswick Press.)

1919.—"An account of the Roman Pottery made at Ashley Rails. A record of excavations continued, on and off, for one year, resulting in the discovery of nine perfect vessels, and several that could be restored (all of which are in the British Museum), and of a hitherto unknown New Forest manufacture, namely, stamped ware, previously supposed to have been imported from Gaul. (Chiswick Press.)

1920.—"In conjunction with Mr. W. G. Wallace. Ancient Earthworks in the Bournemouth District, being a survey and record of the same, described and delineated in six plans and a map. Proceedings of the Bournemouth Natural Science Society, Vol. XII.

1921.—" A descriptive account of Roman Pottery sites at Sloden and Linwood, New Forest, being a record of the discovery and excavation of five undisturbed kilns, thereby supplying knowledge, hitherto lacking, of Romanised Pottery Kilns construction in this district. Three perfect vessels were found, which are now in the British Museum. In the last (1924) edition of Professor Haverfield's ' The Romanisation of Roman Britain,' revised by Mr. G. MacDonald, he says, ' Much light has been thrown on the New Forest Industry by the series of Reports which Mr. Heywood Sumner has published in the Chiswick Press.'

1921.—" An illustrated account of the discovery and excavation of another Roman Pottery Kiln at Linwood, contributed by Mr. Heywood Sumner to ' The Journal of Roman Studies,' Vol. XII., Part I. The coins found in these New Forest Pottery diggings (6) range from A.D. 131 to 337.

1922.—" Barrows on Ibsley Common. A record of the excavation of six Barrows (four of which were unrecorded), illustrated by plans, figures and a map. Contributed to Proceedings of the Bournemouth Natural Science Society, Vol. XIV.

1923.—" A Map of Ancient Sites in the New Forest, Cranborne Chase, and Bournemouth Districts. This map connects the three districts of previous surveys and a few excavations, and includes references to all records that have been published of excavations on sites within these districts. Published by the Author at South Gorley, Fordingbridge.

1924.—" Excavations at East Grimstead, Wiltshire. A record of the discovery and excavation of a Roman Villa thereat, with plans, illustrations and a map. The coins found here (59) range from A.D. 253 to 375. (Chiswick Press.)

In all the above, Mr. Heywood Sumner has tried to convey the pleasure, as well as the Archæological interest, that attend such investigations, and to produce plans of beautiful sites that may not deter the reader from visiting them, but rather that may allure him."

NOTE.—All the relics found at Rockbourne Down, Ibsley Common and East Grimstead have been placed in the Salisbury Museum.

Lectures and Papers by Mr. Heywood Sumner, F.S.A., recorded in the Proceedings of the Bournemouth Natural Science Society :—

1914.—Peace and War on Cranborne Chase.

1915.—The Ancient Earthworks of Cranborne Chase.

1917.—The Ancient Earthworks of the New Forest.
1918.—Old Maps of Hampshire, Dorset and Wiltshire.
A Paper on the same, Vol. XI., pp. 52-55.
1919.—Excavations on a Roman Pottery site in the New Forest.
1920.—Report of the Survey of the Bournemouth Area (Mr. Sumner and Mr. W. G. Wallace).
A Paper on the Ancient Earthworks in the New Forest District, with numerous plans, Vol. XII., pp. 48-67.
1921.—The Excavations of Five Roman Pottery Kilns at Sloden and Linwood.
1922.—Excavations in Six Barrows on Ibsley Common.
A Paper on same with plans, Vol. XIV., pp. 69-78.
1923.—Topography.
1924.—Notes and Queries relating to Bournemouth and New Forest District.

In addition, ' The Guide to the New Forest,' a handy volume with a map and numerous illustrations in your own graphic style, was published in December last. This discusses the New Forest in the past, the New Forest in the present, with miscellaneous records, all carefully arranged and easily referred to. I had the pleasure of spending a fortnight in the Forest recently, and I found your handbook most serviceable and brimful of facts of great interest. You, fortunately, possess a remarkable gift of illustrating your contributions and thus render them singularly interesting and attractive. We have a good example of this in the frieze of the New Forest Pottery which decorates the walls of the Archæological room in this building.

" In concluding this record of your many services to Archæology, I would add that you have always taken a deep interest in the general progress of this Society, and it is always a pleasure to the members to read the results of your researches. It is sincerely hoped that you will live to continue these for many years to come. I now have much pleasure, on behalf of the Council, to present you with the Morris Gold Medal which bears the appropriate legend ' Scientiis Naturalibus Feliciter Excultis.' "

Sir Daniel then hung the medal, which was attached to a broad red ribbon, round Mr. Sumner's neck, and presented him with a framed souvenir recording that he is a gold medallist.

Mr. Sumner replied : " The recipient of the Morris Gold Medal awarded by the Council of the Bournemouth Natural Science Society must feel that he is in a cleft stick. He knows the shortcomings of his own work only too well, and yet he cannot make such confession without controverting the judgment of the Council. But, although I am thus reduced to silence as to my own endeavours, I may without reserve, welcome this honour on behalf of my subject, namely, Local Pre-historic Archæology, and may express the hope that this award may encourage other and younger members of the Archæological Section to pursue investigations on similar local lines. There is

so much to be done in the Bournemouth, Cranborne Chase and New Forest districts. So many ancient earthworks that still hold their secrets below ground, awaiting excavation to explain their purpose, and to unfold the bygone life of which they are expressions, and if such younger members set to work methodically, if they are persistent, observant, and fully record their results, they will surely contribute valuable items of knowledge to this subject. So may it be: and thus may the present award of the Morris Gold Medal to a Member of the Archæological Section create future Archæological activities in these districts. I thank you, Sir Daniel, for your kind and valued words in presenting this beautiful medal; I thank the Council for their award; and I thank the Members of our Society for their hearty reception."

A vote of thanks to the Chairman closed the meeting.

Council's Report, 1924.

THIS YEAR is memorable in that it sees the completion of the 21st year of the existence of the Society. It was founded in August, 1903, by a few persons interested in Science, who met at Pen Selwood the residence of the late Miss C. Agnes Rooper. It is believed that there are only eleven of the original members now remaining.

In 1904 there were 111 members. On September 30th of this year there were 654.

During the year General and other Meetings have been held as follows, viz. :—

Annual Meeting
Presidential Address
6 General Lectures and Meetings
69 Sectional and other Meetings
7 General Excursions
29 Sectional do.

making a total of 113 Meetings and Excursions.

This 21st Annual Report enables the Council to record that the Society continues to maintain the reputation it has acquired for usefulness and activity.

The General Lectures and Meetings were :—

*Illustrated by Lantern Slides.

1923.

Oct. 13.—Annual Meeting.

Oct. 20.—Presidential Address by Sir Fredk. Wm. Keeble, K.B.E., D.Sc., F.R.S. Subject, "Plant Sensitiveness."

*Nov. 3.—"Thibet, a Scientist's Adventures and Perils," by Capt. F. Kingdon Ward, B.A., F.R.G.S.

*Nov. 24.—"A Tour through the Peloponesus," by Miss H. C. Schott, M.R.I., F.R.G.S.

*Dec. 1.—"The Lake Villages of Somerset," by Mr. H. St. George Gray.

1924.

*Feb. 25.—"Some of my Experiences in the Isles of Scilly," by Mr. J. C. King.

*March 19.—"Cavern Exploration in Mendip," by Mr. Herbert E. Balch, F.S.A.

July 28.—"Presentation to Sir Daniel Morris, K.C.M.G., J.P.

Sectional Lectures.

Archæological and Historical Section.

1923.

*Oct. 27.—"Recent Anthropology," by Rev. Hy. Shaen Solly, M.A.

*Nov. 22.—"The Roman Wall in Northumberland," Part I., by Col. J. R. Dodd, M.D., F.R.C.S.

*Dec. 10.—Do. Part II., by do.

1924.

Jan. 16.—"The Ancient Office of Coroner," by Mr. W. H. Savery, J.P., C.C.

*Feb. 16.—"Some Old-Time Manners and Customs," by Dr. T. F. G. Dexter, B.A., D.Sc., P.H.D.

Feb. 24.—"Angkor and the Marvellous Cities of Cambodia," by Rev. F. A. Allen, M.A.

*March 6.—"Notes and Queries relating to Bournemouth and the New Forest District," by Mr. Heywood Sumner, F.S.A.

March 27.—Discussion on Norman Castles, with special reference to Castle Hill, Cranborne, by Rev. Hy. Shaen Solly, M.A.

*April 5.—"Portchester and St. Cross," by Mr. E. Dodshon, L.L.B.

April 5.—Meeting to arrange Summer Excursions.

April 24.—"Place Names," especially in the Bournemouth district and Cherbourg, by Mr. R. K. Cardew.

Astronomical Section.

1923.

Oct. 29.—"A Brief Account of Some Recent Advances in the Science," by Col. E. E. Markwick, C.B., C.B.E., F.R.A.S.

Nov. 26.—Demonstration of the New Astronomical Model, by Dr. Wm. Wilson, F.R.A.S.

1924.

*Jan. 3.—"The Moon, her Motions and her Face," by Col. E. E. Markwick, C.B., C.B.E., F.R.A.S.

January 24.—"The Amateur's Equipment," by Mr. B. M. Peek, M.A., F.R.A.S.

Feb. 26.—"Some Notes on Recent Astronomical Research," by Col. E. E. Markwick, C.B., C.B.E., F.R.A.S.

*March 31.—"The Planet Saturn," by Capt. M. A. Ainslie, R.N., B.A., F.R.A.S., F.R.M.S.

April 28.—Conversation Meeting.

Botanical Section.

1923.

*Nov. 17.—" Slides of Flowers, Orchids and Ferns shown.
Dec. 6.—" How Does a Plant Live? The Miracle of Chlorophyll," by Mr. J. F. Rayner, F.R.H.S., M.B. Myc. Soc.

1924.

*Jan. 3.—" The Development of Vegetation," by Mr. W. Munn Rankin, M.Sc., B.Sc.
Jan. 12.—" At Home."
Jan. 23.—" The Cultivation and Preparation of Rubber," by Mr. J. A. Alexander, F.R.G.S., F.R.S. (Edin.).
*Feb. 12.—" Some Familiar Trees in Nature, Books, and Legend," by Rev. Geo. Sampson, M.A.
*Feb. 28.—" Fossil and Living Charophytes," by Mr. Jas. Grove, F.L.S.
*March 22.—" A Romance of Plant Life," by Sir Daniel Morris, K.C.M.G., J.P., F.L.S.
April 3.—Meeting to arrange Summer Excursions.
June 24.—" At Home."

Entomological Section.

1923.

Nov. 16.—" The Genus Morpho," and exhibition of gorgeous specimens, by Dr. G. E. J. Crallan, M.A., M.B., M.R.C.S.

1924.

Jan. 18.—" Papilionæ," by Dr. G. E. J. Crallan, M.A., M.B., M.R.C.S.
*Feb. 22.—" A Fortnight Spent on the River Amazon," by Mr. Alan Druitt.
*March 21.—" Ova of Lepidoptera," by Dr. G. E. J. Crallan, M.A., M.B., M.R.C.S.
March 26.—" Among the Beetles Again," by Mr. Jos. Neale, B.A.
April 11.—Exhibition of Objects of Interest.

Geographical Section.

1923.

*Oct. 30.—" Up the Amazon to the Interior of Peru," by Miss E. E. Twemlow.
*Nov. 13.—" A Cruise to Madeira and the Canary Islands," by Mr. W. Cecil Collinson.
*Nov. 29.—" North Borneo," by Major Galloway.

1924.

*Jan. 8.—" Wild Wales, the Land and the People," by Mr. John Williams (Geographical and Archæological.)
*March 29.—" Oxford," by Mr. E. Dodshon, L.L.B.
*April 23.—" Scenes in the Indian Mutiny," by Mr. Claude Lyon.

Geological Section.

1923.

*Dec. 15.—" The Chines and Cliffs of Bournemouth," by Mr. Henry Bury, M.A., F.L.S., F.G.S.

1924.

*Jan. 19.—" The Geological Strata at Alum Bay," by Mr. E. St. John Burton, F.G.S.
*Feb. 2.—" Pebbles," by Dr. G. E. J. Crallan, M.A., M.B., M.R.C.S.
*March 24.—" The Bournemouth Plateau and its Palæoliths," by Mr. Henry Bury, M.A., F.L.S., F.G.S.

Mathematical Section.

1923.

Nov. 1.—"Relativity," by Mr. B. M. Peek, M.A., F.R.A.S.
Dec. 5.—"The Logic of Mathematical and Scientific Enquiry," by Mr. Brian Mead, F.C.S., A.R.C.Sc., M.Sc.
Dec. 13.—"Relativity," the Principle of Equivalence, by Mr. B. M. Peek, M.A., F.R.A.S.

1924.

Jan. 24.—Do., the Problem Revealed by the Measurement of Space and Time, by Mr. B. M. Peek, M.A., F.R.A.S.
Feb. 14.—Do., by do.
March 13.—"Catacaustics," by Mr. W. H. Scott, M.A.
March 20.—"Relativity," by Mr. B. M. Peek, M.A., F.R.A.S.

Microscopical Section.

1923.

Nov. 21.—Exhibition of Objects of Interest.

1924.

Jan. 25.—Do.
*Feb. 20.—"Some Ponds near Bournemouth," by Mr. S. Whitaker.
March 18.—Exhibition of Objects of Interest.
April 16.—Do.

Photographic and Record Section.

1923.

*Nov. 15.—"A Fenland Masterpiece: Ely Cathedral," by Mr. W. Cecil Collinson.

1924.

*Jan. 24.—"Colour in Nature, Art and Photography," by Dr. H. D'Arcy Power.
*April 12.—Exhibition of Members' Work for the Year, by Mr. R. Y. Banks.
*April 30.—"Amateur Photographer" Prize Slides, 1923, by do.

Physical Section.

1923.

Nov. 10.—"Solutions," by Mr. Hubert Painter, B.Sc., F.C.S.
Dec. 8.—"The Application of Methods of Chemical Research to the Solution of Industrial Problems," by Mr. Brian Mead, F.C.S., A.R.C.Sc., M.S.

1924.

*March 1.—"Modern Illumination," by Mr. R. M. Clark, M.C., B.Sc.
April 26.—Nitrogen and some of its Compounds," by Mr. Hubert Painter, B.Sc., F.C.S.

Zoological Section.

1923.

*Dec. 5.—"The Physical Evolution of Man," by Mr. Wm. Gosse, M.D., D.P.H.

1924.

*March 25.—"Notes on some Mammals of Kerr Co. Texas," by Mr. Howard Lacey.

The General Excursions and their Leaders were :—

1924.

May 31.—Wells, Mr. Claude Lyon.
June 4.—Creech Grange, Sir Daniel Morris, K.C.M.G., J.P.
June 21.—Hursley Park and Gardens, do.

June 25.—The Aquarium, Zoological Gardens, Dr. F. G. Penrose, F.R.C.P., F.Z.S., M.B.O.U.
July 12.—Forde Abbey, Mr. R. A. de Paiva.
Aug. 15.—Wolfeton House, Mr. Harry Pouncy.
Sept. 10.—Bloxworth House, Mr. Claude Lyon.

The Sectional Excursions and their Leaders were :—

1924.
March 4.—Studland, Miss Rooke (Botanical).
April 15.—Wareham, Mr. Howard Lacey (Botanical).
April 25.—Shapwick, Mr. R. K. Cardew (Botanical).
May 8.—Littlesea, Miss Rooke (Botanical).
May 14.—Holmsley to Sway, Mr. J. Vorse (Botanical).
May 20.—Portchester and Titchfield, Rev. Hy. Shaen Solly, M.A., and Col. J. R. Dodd, M.D., F.R.C.S. (Archæological and Historical).
May 21.—Mudeford, Capt. Griffiths (Microscopical).
May 22.—Verwood and Woodlands, Major T. C. Moore, I.M.S. (Botanical).
June 3.—Branksome Chine, Mr. Henry Bury, M.A., F.L.S., F.G.S. (Geological).
June 5.—Wallhampton House Gardens, Rev. C. O. S. Hatton, B.A., F.L.S. (Botanical).
June 7.—Tyneham Manor House, Mr. R. Y. Banks (Photographic and Record).
June 12.—New Forest, Mr. Heywood Sumner, F.S.A. (Archæological and Historical).
June 14.—Corfe and Norden, Miss Rogers-Burns (Botanical).
June 19.—Badbury Rings, Mr. Arthur Gray (Botanical and Entomological).
June 20.—Iwerne Minster, Mr. Hy. Backhouse (Physical).
July 1.—West Dean and Lockerley, Rev. Edward Wells, M.A. (Botanical).
July 4.—Highcliffe and Barton, Mr. E. St. John Burton, F.G.S. (Geological).
July 9.—Parkstone and Lilliput, Mr. H. J. Wadlow (Botanical).
July 15.—Redcliffe and Ridge, Mr. Howard Lacey (Botanical and Entomological).
July 16.—Bournemouth Pier, Mr. F. B. Taylor, B.A. (Microscopical).
July 18.—Cowgrove, Sturminster Marshall and the Tarrant Valley, Rev. H. S. Solly, M.A., and Col. J. R. Dodd, M.D., F.R.C.S. (Archæological and Historical).
July 23.—Vereley near Burley, Mr. R. Y. Banks (Photographic and Record).
Aug. 8.—Nine Barrow Down and Remstone Stone Circle, Col. J. R. Dodd, M.D., F.R.C.S. (Archæological and Historical).
Aug. 13.—Poole Park, Mr. S. Whitaker (Microscopical).
Aug. 17.—Corfe Castle, Mr. Howard Lacey (Botanical).
Aug. 20.—The Blue Lake, Mr. R. Y. Banks (Photographic and Record).
Aug. 21.—A Workers' Field Excursion (Botanical).
Sept. 6.—East and West Parley, Miss Rooke (Botanical).
Sept. 17.—Fungus Foray, Mr. J. F. Rayner, F.R.H.S., M.B. Myc. Soc. (Botanical).

Among the General Lectures, those of special interest were :—" The Lake Villages of Somerset," by Mr. H. St. George Gray; " Some of my Experiences in the Isles of Scilly," by Mr. J. C. King; and " Cavern Exploration in Mendip," by Mr. Herbert E. Balch, F.S.A.

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TYNEHAM MANOR, DORSET.
Building containing old timber roof.

TYNEHAM MANOR from South.

Among the Sectional Lectures was one given in the Archæological and Historical Section on "The Ancient Office of Coroner," by Mr. W. H. Savery, J.P., C.C.; in the Astronomical Section on 'The Planet Saturn," by Capt. M. A. Ainslie, R.N., B.A., F.R.A.S., F.R.M.S.; in the Botanical Section on Fossil and Living Charophytes," by Mr. Jas. Grove, F.L.S.; and in the Geological Section on "The Bournemouth Plateau and its Palæoliths," by Mr. Henry Bury, M.A., F.L.S., F.G.S.

Mention may be made of a series of five lectures on "Relativity" by Mr. B. M. Peek, M.A., F.R.A.S.

The General Excursions were all of great interest and were largely attended.

Of the Sectional Excursions may be mentioned Wallhampton House Gardens, Tyneham Manor House with its fine old timber roof, and the Churches in the Tarrant Valley.

Of the 29 Sectional Excursions 16 were undertaken by the Botanical Section.

At the last Annual Meeting Sir Fredk. Wm. Keeble, K.B.E., D.Sc., F.R.S., Sherardian Professor of Botany, Oxford University, was elected President of the Society for 1923-24. He gave his Presidential Address on October 20th, the subject being "Plant Sensitiveness."

The Morris Gold Medal was awarded to the Rev. E. F. Linton, M.A., for 1923-24 and presented to him at the Annual Meeting by Sir Daniel Morris, K.C.M.G., J.P., F.L.S.

Mr. Heywood Sumner, F.S.A., has been elected as the recipient of the Medal for 1924-25.

A Presentation was made by Dr. G. E. J. Crallan, M.A., M.B., M.R.C.S., on behalf of a number of members of the Society to Sir Daniel Morris, K.C.M.G., J.P., on July 28th, to commemorate his 80th birthday, and in recognition of the untiring and valuable services he has rendered to the Society for many years. This consisted of a cheque for twenty Guineas and a case in brown suede leather, with the monogram, D.M., May 26, 1924, containing a congratulatory address and the signatures of those who had subscribed to the testimonial.

An At Home was held on Thursday, September 11th, at 39, Christchurch Road, to commemorate the coming of age of the Society.

Sir Daniel Morris, K.C.M.G., J.P., F.L.S., and President from 1913 to 1916, Dr. G. E. J. Crallan, a former President and original member, Sir David Prain, C.M.G., C.I.E., F.R.S., a past President, and Col. Markwick, C.B., C.B.E., F.R.A.S., a former Secretary, spoke of the early history and present position of the Society.

A number of exhibits of scientific interest were shown by the Chairmen of Sections.

The Wild Flower Exhibition at the Lansdowne Public Library has maintained its popularity. Real interest in the

educational work it carries on is shown by residents and visitors to the town, as well as by the young people attending schools.

A large number of botanical specimens are brought to be identified, and a pleasurable experience is that, in return, many rare and interesting plants have been sent from distant counties, especially N. Britain, by those who have derived information during visits to Bournemouth, thus enabling students to examine a considerable number of the British Flora. About 1,000 native and alien plants and shrubs have been shown.

The work has been carried out by Miss Rooke, Mr. Howard Lacey, Mr. Vorse, Miss S. Wetherell, and Mrs. Garnett.

On June 24th the Botanical Section held an At Home in the Society's Garden. A large number of wild and garden plants and shrubs were shown in the Lecture Room.

The Council desires to record its thanks to Mr. Arthur Gray for providing numerous beautifully executed labels for the Museum exhibits.

Mrs. Eleanor Mary Reid, B.Sc., F.L.S., has been elected an Honorary Member of the Society in recognition of her valuable work in connection with fossil seeds.

The Council regrets the loss by death of Lady Alabaster, Mrs. Charsley, Rev. T. J. McNulty, Dr. T. Bodley Scott, Mr. Edwin Stay, Mrs. Hanbury Thomas, Lt.-Col. J. C. White and Mr. W. A. Willes.

The principal donations to the Society include a number of books, given by various donors, and 24 cases of stuffed birds, mostly obtained near Mudeford or Wareham, presented by Miss E. K. Pearce. A number of plants and shrubs have also been given for the garden.

In conclusion, the Council desires to express its best thanks to all who have presented objects of interest and use to the Society or given lectures or conducted excursions, and especially to owners and occupiers who have kindly permitted the Society to visit the several places of interest controlled by them.

Summary of Accounts for Year ending 30th September, 1924.

Current A/c.

RECEIPTS.

	£	s.	d.
Members' Subscriptions	516	5	0
Voluntary Donations	9	7	6
Sale of Natural History of Bournemouth	1	0	0
Rent from Tenants	130	0	0
Letting of Hall	5	2	0
Special Donations towards Cost of Proceedings	8	17	3
Ditto ditto for Library	1	10	0
Refund of Cost of Wild Flower Exhibition by Education Committee ...	1	13	5
Hire of Lantern Slides	0	10	0
	674	5	2
Balance from last year	195	9	0
	£869	14	2

PAYMENTS.

	£	s.	d.
Rates and Taxes	87	17	11
Interest on Debentures ... 191 15 0			
Less Tax 40 14 8			
	151	0	4
Salaries, Wages, Insurance Stamps ...	96	4	10
Printing and Stationery	56	1	7
Expenses of Meetings and Excursions less Proceeds	6	4	
Volume XV. of Proceedings	37	18	8
Postage	27	9	6
Water, Lighting, Heating	41	11	2
Subscriptions to other Societies	17	6	
Furnishing and Maintenance	57	16	0
Insurance	9	6	5
Museum and Collections	32	19	8
Library, Papers, etc.	10	14	6
Debenture Redeemed	10	0	0
Share of Telephone	3	3	0
Cost of Wild Flower Exhibition	1	13	5
Sundries	1	18	6
	626	19	4
Balance at Bank	242	14	10
	£869	14	2

Summary of Accounts for Year ending 30th September, 1924.

Deposit A/c.

RECEIPTS.	£ s. d.	PAYMENTS.	£ s. d.
Balance from last year	106 18 8	Balance on deposit	109 11 6
Interest	2 12 10		
	£109 11 6		£109 11 6

We have examined the above Account with the Books of the Society and the Vouchers for payment and certify the same to be correct.

BICKER & PETTITT,
Incorporated Accountants.

C. H. BLACKETT,
Hon. Auditor.

Bournemouth.
27th November, 1924.

Report of Summer Excursions, 1924.

Wells. The first General Excursion of the season took place on Saturday, May 31st, to Wells, under the leadership of Mr. Claude Lyon, and was attended by 75 Members.

They travelled to Shepton Mallet by the 9.50 a.m. train, arriving at 11.26. Cars then conveyed them to Tor Hill, a wooded eminence from which a good view of the Cathedral was obtained, and here lunch was taken. A short walk along the Moat walk took them to the Museum, where Mr. Herbert E. Balch, F.S.A., met them and explained many very interesting objects which he had found when exploring Wookey Hole.

The Rev. Canon Alcock met the Members in the Cathedral and read a paper on its history, which had been prepared by the Dean, and then went round the interior, pointing out some of its interesting details; among them were some carvings on the pillars which told a quaint story. He called attention to the beautiful chantry of Bishop Beckington, who built the western side of the cloisters and provided a water supply for the town which has never been known to fail. He also showed the crypt which was formerly the Treasure House of the Cathedral, and the Chapter House, the roof being supported by one centre pillar, the groining spreading out like a fan. All round the walls are a number of small pillars, the capitals of which represent faces, every one different, bearing a humorous expression.

Mr. Balch then took charge and led the party to the Vicar's Close, which is a short street of picturesque houses, built for the Vicars Choral of the Cathedral. It is quite unique, and has the Vicar's Chapel blocking one end of the Close.

The Lord Bishop of Bath and Wells had given permission for the Members to visit his palace and gardens, including the private chapel and crypt. The great hall, which is now a ruin and was 100ft. long and 50ft. wide, has only one wall standing, with two large lancet windows, of which the stone tracery is still extant. In the reign of Edward VI. a layman was appointed Dean and he ruthlessly used the stones to improve his Deanery. Mr. Balch pointed out the springs which supply the moat; the water passes into a small building in which is a tank where the water remains at the same level.

After tea at Wickenden's Restaurant, the party drove to Croscombe and went into the Church and heard a very interesting address by the Rector, the Rev. Geo. Freeman. He said that Croscombe was at one time a larger place than either Wells or Shepton Mallet and was the centre for the Guilds of the country. The church contains a large amount of black oak; the chancel screen, pulpit and canopy are very fine specimens of Jacobean carving. The doors of the pews at the lower end of

the church were of a much earlier date and more finely cut, one in particular, surmounted by a figure representing two priests or a priest and a king, is considered by experts to be not less than 800 and probably 1,000 years old.

The return journey was made by the 7.19 p.m. train, reaching Bournemouth about 9 o'clock.

Creech Grange. By the kind permission of Mr. J. M. G. Bond, D.L., J.P., a visit was paid to Creech Grange on Wednesday, June 4th. Unfortunately the weather was very wet, which prevented many Members from participating in the excursion and the numbers were reduced to 15.

They left the Square in cars and arrived about one o'clock. Lunch was taken in the hall of the house, after which the visitors were allowed to see the principal rooms. In the hall were numerous small heraldic shields, and in the drawing room coats of arms in the windows. The dining room was lined with family portraits.

Notwithstanding the inclement weather, a hurried walk was made through the woods, where there were many fine trees and large clumps of rhododendrons and Ghent azaleas, which made a beautiful show of colour, though the rain had done considerable damage to them. Two large beds of white azaleas near the house were conspicuous.

The party was hospitably entertained at tea by Mr. and Mrs. Bond, and a resolution of cordial thanks to them was passed before leaving. Bournemouth was reached a little after 6 o'clock.

Hursley Park and Gardens. By the kind permission of Sir Geo. A. Cooper, Bart., the Members of the Society had a very pleasant excursion on Saturday, June 21st, to Hursley Park, near Winchester. The weather was most favourable and a very enjoyable afternoon was spent amid beautiful surroundings. The leader on this occasion was Sir Daniel Morris, K.C.M.G., J.P., F.L.S., a Vice-President of the Society, who was familiar with the most attractive features of Hursley Park and Gardens, and a large number of Members took advantage of the opportunity of visiting a place so full of interest. It is impossible to do justice to the numerous trees, shrubs, and flowering plants that came under observation in the course of an afternoon visit, but with the assistance of several Members of the Botanical Section there was very little that escaped notice.

Apart from the five large trees in the park and the extensive plantations of forest trees in the immediate neighbourhood, there

were noticed in the gardens some notable specimens of Conifers such as the Lebanon Cedars and the Himalayan Deodars. Also a tall tree of the Chili pine, Araucaria, the swamp cypress of the Southern United States, the Bhotan pine (Pinus excelsa), covered with clusters of large dry cones, and a remarkably fine specimen of the Douglas Fir with branches pendant to the ground.

Among the American trees naturalised in this country were seen the Nettle or Sugarberry, side by side with the Nettle tree of Southern Europe. The Tree of Heaven from Northern China and the Tulip Tree of North America were well grown specimens. A fine Cork Oak, with the stem covered with its characteristic thick bark, attracted attention, as also a tall specimen of the Maidenhair Tree, native of Western China.

An English oak was noticed bearing a spray of mistletoe, an occurrence which is rather rare in this county. Hitherto the only Hampshire oak with mistletoe was recorded at Hachwood Park, near Basingstoke, in 1873. The mistletoe on the oak at Hursley Park is, therefore, an interesting discovery. Mistletoe was also seen on the common English lime and on maple trees. An attractive looking tree was the Sweet Gum or Liquidamber of North America. But one of the most striking trees in the garden area was a well grown Oriental Plane, with large, wide-spreading branches, covering an area 75 yards in diameter.

A walk round the flower garden afforded much pleasure, as also a visit to the conservatories, where remarkably fine collections of carnations were seen. In one house there were fruiting specimens of the Chinese or, what is now commonly known as, the Canary Banana, which attracted attention.

After tea a visit was paid to Hursley Church, which will for ever be associated with the memory of the saintly poet, John Keble, who was formerly its vicar. He died at Brookside House, in Exeter Road, at Bournemouth, where a bronze tablet is affixed near the entrance bearing an inscription as follows :—" In this house John Keble, M.A., Vicar of Hursley, author of ' The Christian Year,' entered into rest, March 29, 1866." His wife, according to the inscription on her tomb, died in May, 1866. It was noticed that there was a monument in Hursley Church to the memory of Richard Cromwell, son of Oliver Cromwell, whom he succeeded as Lord Protector, but resigned in 1659. Richard Cromwell married the heiress of a large property in the neighbourhood of Hursley, and died at Cheshunt, near London, in 1712.

Zoological Gardens.

On Wednesday, June 25th, a party of 20 Members made an excursion to the Zoological Gardens to see the new Aquarium. Starting by the 8.45 a.m. train, they reached Waterloo at 11 and

were driven in a private omnibus to the north gate of the Gardens, where they were met by Dr. F. G. Penrose, F.R.C.P., F.Z.S., M.B.O.U., a Fellow of the Zoological Society, who described the interesting occupants of the tanks. After seeing the Aquarium, a tour of the Gardens was made. Lunch and tea were taken in the Gardens, and the party returned to Bournemouth by the 6.30 p.m. train.

Forde Abbey.

On Saturday, July 12th, an excursion was made to Forde Abbey, the residence of Mr. and Mrs. Freeman Roper. More than 120 members attended.

Leaving the Square at 9 a.m., travelling via Dorchester and Beaminster, they reached the Abbey about 1 o'clock. Lunch was taken in the beautiful grounds. At 2 o'clock the large party was personally conducted through the house by Mr. and Mrs. Roper and the Rev. F. E. W. Langdon.

The Abbey was founded in 1133 by Adeliza, a daughter of Baldwin de Brienne, whose mother was niece to William the Conqueror, for monks of the Cistercian Order, and remained in their possession till the dissolution of the monastery in 1539. The present structure was finished in 1148.

Thomas Chard, who succeeded to the Abbey in 1521, was the last Abbot of the monastery, and it was to him we are indebted for what is perhaps the best preserved specimen of ecclesiastical architecture in this country. He added to and greatly beautified the building.

Chard surrendered the monastery to Henry VIII., who granted the property to Richard Pollard, who sold the Abbey to Sir Amyas Poulett, some time custodian of Mary Queen of Scots, and by great good fortune, at the time of the Commonwealth, it had passed to Mr. Edward Prideaux, who became Attorney General to the Protector and was made a Baronet by Cromwell. Prideaux employed Inigo Jones to adapt and embellish the interior for the occupation of a family. Prideaux's daughter married her cousin, Francis Gwyn, who died in 1734.

The property then fell to a kinsman, who took the name of Gwyn. The Abbey passed from the Gwyns in 1847. It was bought by a Mr. Miles, and then by Mrs. Bertram Evans in 1865, whose eldest son, Mr. Herbert Evans, and Miss Evans were successive owners. On the death of the latter in 1906 the estate and house passed to her cousin, Mrs. Roper, wife of Mr. Freeman Roper, a Justice of the Peace for the County of Dorset.

The entrance hall is a large, lofty, vaulted room. The grand staircase has a splendidly carved balustrade, designed by Inigo Jones. The saloon is 50ft. by 20ft. and 28ft. high. It is hung with tapestries which are fine copies of the famous Raphael cartoons and bear the badge of the Mortlake factory. The subjects are " The Sacrifice at Lystra," " Our Saviour's Charge to

FORDE ABBEY, DORSET.
Great Hall and Entrance Tower.

FORDE ABBEY.
Cloister.

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St. Peter," " St. Peter and St. John at the Beautiful Gate of the Temple," " Ananias and Sapphira " and " The Miraculous Draught of Fishes." These tapestries have been at Forde Abbey for nearly 200 years. It is said that Catherine of Russia offered £30,000 for them without success. In the small drawing room are four other tapestries (Flemish), depicting scenes in the life of King Constantine. The ceilings in the chief rooms are by Inigo Jones. A suite of bedrooms was arranged for the occupation of Queen Anne, who contemplated a visit to the Abbey.

The dormitory of the monks is 97ft. in length and is lighted by lancet windows. The Chapel is one of the gems of the Abbey; it was originally the Chapter House.

Leaving the Chapel, the party passed through the cloisters, back to the hall and entrance, where a hearty vote of thanks was given to Mr. and Mrs. Roper.

Another stroll in the grounds was enjoyed, visiting the beautiful rock gardens and the adjoining herbaceous border.

The members then re-entered the cars, which had been stationed under the shade of some noble cedars, and drove to Beaminster, where they enjoyed a good tea, served in the Public Hall. They then returned home via Bridport and Dorchester, reaching Bournemouth about 8 o'clock. The weather was perfect.

Wolfeton House.

On Friday, August 15th, nearly 150 Members made an excursion to Wolfeton House by the kind permission of Mrs. Albert Bankes, under the leadership of Mr. Harry Pouncey, hon. assistant Secretary of the Dorset Field Club.

Leaving the Square at 10.30 a.m., a halt was made at Dorchester, where Mr. Pouncey joined the party. After lunch, which was taken in the beautiful garden, Mr. Pouncey gave an interesting account of the families who had been possessors of Wolfeton.

The name Wolfeton suggests a Saxon foundation—the abode of one Wupph or Ulwood. It became later the seat of the Norman family of Jourdain, and twice changed hands through the marriage of an heiress of Wolfeton—first when Joan Jourdain married John Mohun, the family after whom " Moon's Bridge " on the old Charminster road is named; secondly when their daughter Alice was espoused in the 15th century by Henry Trenchard, of Hordhill, County Hants. In the Trenchard family it remained over 300 years until, early in the 19th century, the last of the Trenchards of Wolfeton sold it to Mr. James Heming. In 1862 it was bought by the late Mr. W. H. Parnell Weston, who made a few structural alterations in the north front, where his arms appear carved in stone over the door. Early in the seventies it was acquired by that appreciative custo-

dian, Mr. Albert Bankes, who, while jealously preserving all its ancient features, indulged his predilections as a connoisseur in adding to the collections of objects of art.

He also told of the enforced "visit" of Archduke Philip and his consort Joan (afterwards King and Queen of Castille), in 1506, how the presence on that occasion of John Russell, of Berwick, led to the founding of the fortunes of the ducal house of Bedford, and the various legends which survive.

After inspecting all the features of the exterior, the visitors were conducted over the house, in convenient parties, noting especially in the drawing room the richly carved oaken doorcase and chimney pieces, a portion of the expression of the royal gratitude, and the arabesques of the plastered ceiling, then passing through the dining room and mounting the superb newel staircase (nine steps of stone and forty-one of wood) to the gatehouse and tower, where the "priest's chamber" was visited; then returning to the hall with its beautiful linen-fold panelling, and mounting the grand staircase to see the fine tapestries and the original large stone chimneypiece in the saloon or long parlour, now divided into four apartments.

Before leaving Mr. J. H. Ralph Smythe, J.P., Chairman of the Council of the Society, expressed the hearty thanks of the party to Mrs. Bankes.

A short walk across the fields led to Charminster Church, a Norman church, with a handsome late perpendicular tower, built by Sir John Trenchard about 1560, and marked by the double "text" "T" of his initials. During some restoration work four small windows in the clerestory, previously block up, were discovered and re-opened.

Tea was taken at Dorchester, when a hearty vote of thanks was given to Mr. Pouncey. Bournemouth was reached at 7 o'clock.

Bloxworth House. The last General Excursion of the season took place on Wednesday, September 10th, when, by the kind permission of Mr. and Mrs. Lane, a visit was paid to Bloxworth Manor House, under the leadership of Mr. Claude Lyon. 140 members attended.

A halt was made at Lytchett Minster to see the Church and the old yew tree in the churchyard. On reaching Bloxworth village a short walk across a field took the party to the venerable old oak tree, known at the "Bound" or boundary oak, so called because it has for centuries marked the boundary of the parishes of Bere and Bloxworth. It stands a few yards within Bere Wood and measures 22ft. 6in. at 5ft. from the ground. It is now hollow, and is believed to be about 1,000 years old.

The Rector, the Rev. G. K. Roberts, gave a short address to the members assembled in the church and pointed out its

chief points of interest, including the font, the manorial pew, which contains a fireplace, the monument to Sir John Trenchard, and several memorial tablets on the walls, also the sermon glass on a stand in the pulpit. Mr. Lane met the party at the church and conducted them through the park, pointing out several trees which he had planted in commemoration of visits of the Royal Family.

At the house they were received by Mrs. Lane on the lawn. She gave a short address, welcoming the members on this their second visit to Bloxworth. She spoke of her " old world " village which, though six miles from a railway station, could hardly be said to be behind the times, as out of 45 houses forming it, ten have their own wireless instalments, and an omnibus passes through almost daily, linking it with Bournemouth, the " London of the South."

Speaking of the hour glass in the church, she said that its exact date was unknown, but similar ones existed in 1591, and she believed that there were only some 15 or 16 still left in England, but a glass like this one at Bloxworth, with its original stand, was very rare.

Bloxworth House was built in 1608 by the Savage family. Wolfeton House, near Dorchester, was then the seat of Sir Thomas Trenchard, who there entertained the King and Queen (Philip and Joan) of Castille, when wrecked off Weymouth. In return for his hospitality they presented him with their portraits, that of Philip shows him wearing the order of Garter.

Specially notable was a pair of porcelain bowls, the first pieces of Oriental china to reach England; their colour and design are unique; they are very fine specimens of Ming china; their date cannot be later than 1500. The Jonah Cup was presented to the Trenchard who went with the King's retinue to the Field of the cloth of Gold and represents Jonah leaving the mouth of the whale. The portraits, bowls and cup have descended to Mrs. Lane from her ancestors, the Trenchards.

The large party was then admitted into the house in convenient groups, and allowed to see these treasures under the guidance of Mr. Lane. During the afternoon coffee was handed round to the numerous visitors, who much appreciated the kind hospitality. Before leaving Mr. Lyon thanked Mr. and Mrs. Lane for a very enjoyable visit. Tea was taken in the Drax Hall at Bere Regis, and the church there was visited, the Vicar giving a short explanatory address.

Report of the Delegate of the Bournemouth Natural Science Society to the 29th Annual Congress of the South-Eastern Union of Scientific Societies at Guildford,

From May 28th to 31st, 1924.

I attended the Congress, which was favoured by fine weather, and the beautiful country was looking lovely with the early summer foliage and hawthorn and horse chestnut blossoms.

The proceedings opened with a garden party, given by the Mayor and Mayoress in the beautiful grounds of Guildford Castle, which were afterwards tastefully illuminated at nightfall, and the members of the Congress, after enjoying the Mayoral hospitality, were shown round the historic Norman Keep, for long used as a State prison. Near it is the Museum of the Antiquarian Society with numerous interesting exhibits, including specimens of woad, which is now growing wild and was formerly cultivated in the neighbourhood, in connection with the woollen manufacture for which Guildford was famous in the middle ages.

We were then conducted to see all the interesting buildings in the ancient town, the Guild Hall with several fine portraits, painted by Lely and curious Elizabethan regalia, Holy Trinity Hospital, founded by Archbishop Abbott in 1619 which still maintains twelve old brethren and the same number of sisters, and lastly the Grammar School, dating from the time of Edward VI., who founded it.

On the first morning we had the Presidential Address by Sir Richard Gregory on "Science in Civilization," in which he reviewed the many benefits we enjoy due to scientific research, and deprecated the idea that one of the principal uses of science was the perfecting of warlike material, and the means of destruction of life and property, incidentally expressing his disbelief in the powers of the so-called Death Ray, a matter at the time much exercising the public mind.

Among the papers read was one on the geology of the district, one on Eugenics advocating the prohibition of marriage of the mentally and physically unfit, one by Professor Poulton on "Some modes of protection in the pupal stage of butterflies and moths," one by Mr. Ray Palmer, F.E.S., on "Observations on the Communal or Social life of Humble Bees," and one by the Rev. G. O. Ridley on "Some problems of life in the Deep Sea." These were all illustrated by lantern slides and contained much which was new and of deep interest. We also had a paper by Mr. Elliston Erwood on "The Pilgrim's Way," in which the lecturer maintained that it was a Neolithic age trackway and

that there was never much pilgrim traffic along it. In the subsequent discussion, however, several speakers joined issue with Mr. Erwood, maintaining that for many years enormous numbers of pilgrims traversed this route proceeding to the shrine of Thomas à Becket at Canterbury from the Continent after landing at Southampton, where there was a large pilgrims' Hostel; there was also one at Winchester, the first resting place on the journey.

The Excursions I took part in were, one to Hindhead, where we were shown the magnificent view in all directions, and an address was given on the physical and geological features of the Weald of Kent. Afterwards we were entertained by the Haslemere Natural Science Society in their magnificent Museum and Library, the creation of the late eminent surgeon, Sir Jonathan Hutchinson, F.R.C.S., which offers unrivalled opportunities for the study of every branch of Natural Science. The other excursion was to Sutton Place and Clandon Parle. The first-named, a magnificent example of Tudor perpendicular Gothic domestic architecture carried out in terra-cotta imported from abroad, now belongs to the Duke of Sutherland. It was formerly the property of the late Lord Northcliffe and is considered the finest house in Surrey. It contains many artistic treasures of the Tudor period, and is associated with tragic memories of one of the sons of Sir Richard Weston who fell a victim to the jealousy of King Henry VIII. in connection with the unfortunate Queen Anne Boleyn. The first building on the site was erected in the time of Edward the Confessor: the present mansion is approached by a magnificent avenue of lime trees, many of which bear large clusters of mistletoe. Clandon Parle is a more modern (Georgian) structure surrounded by most beautiful gardens and avenues and there we were entertained by the gracious chatelaine, the Countess of Onslow, who turned the house into a military hospital during the war.

J. R. Dodd.

Report of Botanical Section.

The Botanical Section has had another good year; lectures and excursions have been very interesting and in spite of bad weather have been well attended and exceedingly successful.

The display of wild flowers at the Public Library has, as usual, been of great interest to the public. The following list of rare plants (many of them reported for the first time in the district) speaks well for the energy of some of the most active of our members.

Mrs. Rothwell and Mr. J. F. Rayner, F.R.H.S., Miss Rooke and Mr. Wadlow have been (as usual) the most successful workers in the field.

Lon. Cat. Ed. 10. Plants not numbered are not as yet mentioned in the London Catalogue.

— *Glaucium corniculatum.* Cr.
83 *Radicula palustris.* Moench.
84 *Radicula amphibia.* Dence.
— *Sisymbrium orientale.* L.
126 *Sisymbrium Irio.* L.
141 *Brassica alba.* Boiss.
128 *Erysimum cheiranthoides.* L.
— *Lepidium densiflorum.* Schrad.
— *Rapistrum rugosum.* All.
212 *Silene noctiflora.* L.
326 *Oxalis corniculata.* L.
— *Bunias orientalis.*
— *Erodium cicutarium* var. *pimpinellifolia.* Sbthr.
— *Trigonella hamosa.* L.
352 *Medicago falcata.* L.
354b *Medicago denticulata* var. *apiculata.* Willd.
— *Trifolium spinulosum.* Dougl.
374 *Trifolium glomeratum.*
408 *Vicia lutea.* L.
— *Potentilla intermedia.* L.
697 *Oenothera biennis.* L.
792c *Galium palustre* var. *Witheringii.* Sm.
826 *Erigeron canadense.* L.
— *Ambrosia trifida.*
— *Artemisia biennis.* Willd.
898 *Carduus crispus x nutans* (Newbouldi, Wats.).
906a *Cnicus arvensis var. setosa.* Mey.
907 *Onopordon acanthium.* L.
— *Carthamus tinctorius.* L.
928 *Crepis nicœensis.* Balb.
1088 *Lobelia urens.* L. (new station).
— *Lapula echinata.* Gilib.
1217 *Verbascum nigrum.* L.
— *Dracocephalum parviflorum.* Nutt.
— *Sideritis montana.* L.
— *Verbena paniculata.* L.
— *Chenopodium leptophyllum.* Nutt.
— *Axyris amaranthoides.* L.
— *Polygonum tomentosum.* Schrank.
1429 *Polygonum minus.* Huds.
— *Polygonum effusum.* Meiser.
1443 *Rumex limosus.* Thuill.
— *Sisyrinchium chilense.* Hook.
1865d *Agrostis alba* var. *coarctata.* Hoffm.
— *Avena orientalis.* Schreber.
— *Bromus uniloides.* HBK.

Hon. Librarian's Report.

The honorary librarian, Mr. Claude Lyon, had the library re-decorated in the spring. This has greatly improved its appearance. More shelves have been provided to accommodate the ever-increasing number of books. A paper on libraries, past and present, and on the books of the Society's library was read by Mr. Lyon on 14th November, 1924.

A number of valuable works were presented by the following members and others :—

Mr. Henry Backhouse, F.R.H.S.
Mr. Henry Bury, M.A., F.L.S., F.G.S.
Dr. G. E. J. Crallan, M.A., M.R.C.S.
Dr. Wm. Gosse, M.D., D.P.H. (Camb.).
Mons. Janet.
Mr. Massey Lyon.
Miss Pearce.
Mrs. E. M. Reid, B.Sc., F.L.S.
Mr. H. V. Russell-Cotes.
Mr. R. V. Sherring, F.L.S.
Mr. Heywood Sumner, F.S.A.
Mr. F. B. Taylor, B.A. Camb.
Miss A. G. Veale.

Among the works purchased may be mentioned The Life of Sir J. D. Hooker, and Handbook of Coniferæ, and Science from an Easy Chair, 1st and 2nd Series.

Special Meeting on July 28th to offer Congratulations to Sir Daniel Morris on the completion of his 80th year.

The proceedings were opened by Mr. Henry Backhouse, who was in the chair. He said they had come together to make a presentation to Sir Daniel Morris, on behalf of the members of the Society, in recognition of the large amount of work he had done for the Society, and the good influence he had exercised, and to congratulate him on his 80th birthday.

Dr. G. E. J. Crallan then made the presentation, which consisted of a cheque, and an album signed by the contributors. He congratulated Sir Daniel on a life of hard and successful work, and on the gratification of feeling that the work had been

duly acknowledged and honoured. He enlarged on the great services Sir Daniel had given to the Society. He had been President three years, and had held the Chairmanship of the Council for five years. He had been on the Museum Committee and on the Finance and General Purposes Committee, and had presented the Society with a Gold Medal to be awarded annually by the Council.

Mr. Waddington, who is 84 years of age, also associated himself with the presentation.

Sir Daniel, in reply, said the occasion was certainly a landmark in his life; he realised the great kindness and consideration that he had received in connection with his efforts in the work of the Society, which was one of the most important in southern England. He thanked the members for all the kindness shown to him.

"At Home" to Celebrate the Coming-of-Age of the Society.

On 11th September an At Home was held to celebrate the coming of age of the Society. Congratulatory speeches were made, and there was an exhibition of objects of interest by the different sections of the Society under the superintendence of the respective chairmen.

The large company were welcomed by Mr. J. H. Ralph Smythe, J.P., the Chairman of the Council. He said that the coming of age of the Society implied that it had reached a very definite stage in its mature material development, its organisation, and the scope of its action. From all these aspects they viewed the Society with pride, admiration, and pleasure. Among its material possessions was the large, and, on the whole, convenient building: its considerable and ever-increasing library, containing volumes dealing with every subject of science in which they were interested: the large garden, containing a great many beautiful flowers, plants, trees, and shrubs, some of which were rare and uncommon. In regard to organisation, they were a compact body of over 600 members, and, judging by the list of lectures and excursions, they were also a very live Society, guided by experienced, capable, and learned leaders. It was hoped that in course of time a large and convenient lecture hall would be erected, and that generous donors would come forward to increase the number of rare plants and shrubs in the garden, presided over with such care and skill by Mr. Henry Backhouse.

Great credit was, he said, due to Sir Daniel Morris, with his great influence in the scientific world, for his keen interest in the Society and his hard work on the Council. He referred to an address given by Sir Daniel Morris as President of the Botanical Section of the British Association, which had been described by Sir Ray E. Lankester as one of the best and most valuable British Association addresses he had ever read.

HISTORY OF THE SOCIETY.

Sir Daniel Morris, K.C.M.G., then gave an outline review of the history of the Society and its operations. The present Natural Science Society, he said, was started in 1903 and appeared to have owed its origin to Mr. Saville Kent, F.L.S., F.Z.S., whose influence and guidance, together with the valuable assistance of Miss Agnes Rooper, led to what might be regarded as a phenomenal success. The membership in the first year was 111 and 17 lectures were given. In the second year the membership of the Society had increased to 140, 17 lectures were delivered, and seven general excursions arranged. By the third year the membership had grown to 204, and the lectures were of a distinctly interesting and scientific character.

In those early years members who are still connected with the Society were most active in taking part in lectures and excursions.

In 1910 the membership was 284. The receipts were £171 19s. 10d., and the balance carried over was £68 11s. 8d. In 1923 there were 654 members, the receipts were £676 11s. 11d., and the balance carried forward was £195 9s. There were 10 sections, each with a chairman and secretary, and last year 111 meetings and excursions took place. There had been five outside presidents and eight presidents who were members. Mr. Hubert Painter, one of the original resident members, had been nominated as president for the coming year.

Reference was made to the 19th Congress of the South-Eastern Scientific Societies at Bournemouth in June, 1914, at which the Natural Science Society assisted in making the necessary arrangements and publishing an interesting "Guide to Bournemouth."

During war time the Council arranged a series of Empire lectures, which were eminently successful. The net proceeds (£12) were presented to the Mayor's local War Fund.

In 1919 the British Association held its annual meeting at Bournemouth, the Natural Science Society again took an active part in the arrangements, for which it received the hearty thanks of the President and Council.

Sir Daniel Morris referred to the year 1919-20 as an epoch in the history of the Society, for the Society, after being housed in hired rooms in different parts of the town, acquired the freehold

of 39, Christchurch Road, affording ample accommodation for the museum, library, lectures and meetings, and a reading room. Five rooms were let to other societies and the rents from these were almost sufficient to pay the interest on the debentures.

In speaking of the various phases of the Society's work, Sir Daniel mentioned that the library was being steadily enlarged. The Museum Committee found the present accommodation for the display of exhibits was getting too small, but everything was being done to obtain thoroughly satisfactory conditions. An important event was the acquisition of the Dent collection of Barton fossils, described as " one of the best in the world," probably only equalled by the Edward's collection in the British Museum, and the one at the Sedgwick Museum at Cambridge. The Barton cliffs, added Sir Daniel, from which these fossils were obtained, had now been washed away. There were, he said, 800 specimens of vertebrate animals and 3,375 fossil shells. Then there was a fine collection of moths and butterflies presented by Dr. G. E. J. Crallan, the Botley collection of over 2,000 birds' eggs, and other valuable exhibits. The herbarium contained 3,462 sheets of specimens, with 1,542 relating to the Purbeck flora. Wild flowers exhibitions were arranged in summer time at the Central Library, and the photographic section had a large collection of lantern slides.

In conclusion, Sir Daniel Morris said they might regard the Bournemouth Natural Science Society as a body of people of similar tastes and aims joined together in mutual fellowship. Its aim was the pursuit and enjoyment of knowledge and to quicken the spirit of intellectual and scientific enquiry, and kindle an enthusiasm for all that ennobled life and lifted them out of, and above the common phases of daily life. They might admit that some members were, comparatively speaking, non-workers, but they were content that it should be so provided that the orginal aims and intentions of the Society were not lost sight of. They had no wish to alter its popular character but were jealous that the real purpose of the Society should be kept in view and adhered to. The Society existed for the promotion of knowledge of natural science and self-culture, and the distribution to others of the pleasure and benefits which wait on the cultivation of the intellect and a diligent study of the laws of nature which were immutable.

Dr. G. E. J. Crallan, one of the original members and a Vice-President, Sir David Prain, a former President, and Col. E. E. Markwick, also one of the founders of the Society, followed with brief speeches. Before closing Mr. Ralph Smythe made a reference to the valuable service of Mr. Geo. Brumell, who had been honorary treasurer of the Society for 16 years, and of Mr. R. A. De Paiva, honorary secretary for 10 years.

Presidential Address.

SATURDAY, NOVEMBER 22ND, 1924.

"Science and Human Welfare."

HUBERT PAINTER.

Ladies and Gentlemen,

In choosing "Science and Human Welfare" as the title of my Presidential Address, I feel that I have a topic in which all of us have an interest in the strict and original sense of the word interest. It is a part of our business to consider these things and the relation between them.

The very fact of our belonging to this Society shows that we have an interest in Science and, as human beings, we must necessarily be interested in Human Welfare.

From the conservative who believes in walking on the old paths and relying on the wisdom of our ancestors and the accumulated experience of past generations, to the reddest of red revolutionaries who wishes to dissolve the existing framework of Society in a welter of blood and fire, all claim that they seek the welfare of humanity; widely as they may differ as to the means by which this welfare is to be attained or increased.

For our present purpose we may take a Science to be a body of exact and systematically organised knowledge about some special subject-matter, and Science in general to be the whole of which each of the special sciences is a part. Human Welfare, in a large and comprehensive sense, includes the well-being of individuals, so far as this is attainable and the well-being of Society at large, the great and universal Society of which not the living only are members, but also the generations yet unborn through the prolonged, though not infinitely prolonged, future during which we may reasonably expect our planet to be habitable by the race.

Human Welfare is a whole having many factors. Opinions differ as to the relative value and importance of these factors, and the ideal towards which we reach forward may be expected to grow in fulness and complexity with the passing of the ages. The good and great of mankind not only help to bring nearer the realisation of the ideal but refine and ennoble the ideal itself.

As an indispensable basis of human welfare bodily health must be pre-supposed. Whatever tends to diminish pain and weakness, to restrict the incidence of disease and raise the average of health and strength throughout the community, is undoubtedly making for Human Welfare.

On this subject I may refer to the Inaugural Address delivered to the British Association at Toronto on August 6th last by Sir David Bruce, the President of the Association.

Sir David, with admirable lucidity and simplicity, shows what great and beneficent results have already been attained by the application of Science to curative and preventive medicine.

This application of Science he dates from the appearance of "a man whose genius was destined to change the whole aspect of medicine. A man destined to take medicine out of the region of vague speculation and empiricism and set its feet firmly on new ground as an experimental biological science."

Louis Pasteur, the centenary of whose birth we were celebrating two years ago, is the man referred to. The significance of Pasteur's discoveries of the nature of fermentation and putrefaction was grasped by our fellow-countryman, Joseph Lister, and the change in medicine that resulted is described in the words of Sir Clifford Allbutt which, following Sir David, I will proceed to quote :—

"At this moment it is revealed that medicine has come to a new birth. What is, then, this new birth, this revolution in medicine? It is nothing less than its enlargement from an art of observation and empiricism to an applied science founded upon research, from a craft of tradition and sagacity to an applied science of analysis and law; from a descriptive code of surface phenomena to the discovery of deeper affinities; from a set of rules and axioms of quality to measurements of quantity."

The diseases whose causes are known and against which it is possible to fight intelligently and with a prospect of ultimate success, may be divided into Infectious and Non-Infectious.

The Infectious diseases comprise the Bacterial—such as Malta fever, typhoid fever, and tetanus, and the Protozoal—such as malaria and sleeping sickness.

One class of the Non-Infectious division is constituted by the Deficiency Diseases, due to dietetic deficiencies. Scurvy and Rickets are examples of this class; and, in this connection, reference may be made to the discovery of the various vitamines and the part these elusive and mysterious substances play in maintaining healthy conditions.

Lastly, there are the diseases due to excess or defect in the secretions of the ductless glands, such as the pituitary and the thyroid. Of the latter Sir David Bruce says :—

"The effect of its secretion is truly marvellous. A deficiency, and the child grows up a heavy-featured, gibbering idiot. Rectify the supply of thyroid secretion; the heavy features disappear, the eyes brighten, the intelligence returns, and instead of the former heavy-jowled imbecile you have a bright, happy and normal schoolboy. On the other hand, if there is an excess of the thyroid hormone, exophthalmic goitre, or Graves' disease, is the result. Remove the redundancy and health returns."

Although we have so far considered only one of the many ways in which Science has promoted human welfare, namely, by the application of its methods and results to medicine, we have plenty of examples already of the co-operation of different branches of science, often in ways totally unforeseen by those workers who firmly laid the foundations of their several branches.

The great Sir Isaac Newton studied the solar rays and he and others following in his footsteps erected the great structure of the Science of Optics. The framework of this structure is mathematical and two millenniums before Newton's day the Greek geometers were at work fashioning the tools by which this mathematical framework was in after ages to be constructed.

What has all this to do with Malta Fever, typhoid or tetanus?

Bacteriology would have been impossible without microscopes of extraordinary power and precision. Microscopes of a kind might have been slowly evolved by methods of trial and error, but to produce an instrument fit for the bacteriologist the craftsman's skill had to be guided by the theories of the physicist and the calculations of the mathematician.

As a further illustration I will quote another passage from the address of Sir David Bruce :—

" The active principle of the thyroid has been shown to be a compound containing iodine."

If there is no iodine in the soil or water, goitre results, as in parts of Switzerland, Canada and the United States. This aspect of the subject was taken up some ten years ago by Dr. David Marine and his colleagues at Cleveland, Ohio. They find that endemic goitre may be prevented by giving for a time small does of iodine and conclude that " with this simple, rational and cheap means of prevention, this human scourge, which has taken its toll in misery, suffering and death throughout all ages, can and should be controlled, if not eliminated, and look forward in imagination, a few generations hence, to the final closing of the chapter on endemic goitre in every civilised nation in the world."

There may or may not be some transatlantic exuberance in this optimistic prophecy, but there can be no doubt that Science as applied to medicine has in this matter made a very notable contribution to human welfare. In order that this should be done it was necessary that Chemistry should come into being, not merely as a practical art but as a true science. The wonderful technique of chemical analysis by which it is possible to detect the presence or to prove the absence of traces of iodine could never have been evolved by the rule-of-thumb. Boyle must first grasp clearly the idea of chemical elements, the Unitarian Minister, Dr. Joseph Priestly, must discover Oxygen, the great Frenchman, Lavoisier, must establish the true theory of combustion, the Quaker schoolmaster, John Dalton, must expound

the atomic hypothesis upon which all subsequent progress in chemistry is based, a hundred brilliant and patient workers in different departments of chemical investigation must labour to build the great and splendid structure of Chemistry before Dr. Marine can get his analysis performed and make use of the results. It would be easy to multiply instances showing how different branches of science co-operate and how impossible it is to apportion credit among them. If we permit ourselves to personify the different sciences we may imagine them as using the words of St. Paul—we are members one of another.

The primal human needs are of food and water, warmth and shelter. Science has done much in increasing the provision of these fundamental necessities. It would, however, be grossly unfair to ascribe to Science, in the sense in which I am using the term, every advance in agriculture, in the breeding of sheep and cattle and so forth. Although no exact line of demarcation can be drawn we can roughly distinguish between advances in these practical arts due to the slowly accumulating experience of generation after generation of farmers, shepherds and herdsmen, and advances due to the conscious application of Science to practical problems.

All the well-known scientific methods have been thus applied, such as—extensive, long-continued, and accurate observation, experimentation under the guidance of tentative hypotheses, deduction from known laws with utilisation of such deduction for the refinement and correction of hypotheses. The application of such methods has proved fruitful and there has been improvement; that is improvement as regards suitability to human needs; of food plants, such as the cereals, the potato, etc.; of plants used as fodder for domestic animals; improvement also in the strains of the domestic animals themselves, of the sheep as mutton-producer and wool-bearer; of cattle as sources of beef and of milk; of the domestic fowl as an egg-layer and so on. The fertility of soil has been increased by scientific manuring. Witness the use of calcium nitrate as made in Norway. The economic production of this substance would have been impossible before the development of the new science of physical chemistry with its use of higher mathematics and of thermodynamical reasonings, which in themselves often seem enormously remote from any possibility of useful practical application.

Equally strking as an example of the bearing of science on human welfare is the never-ending struggle against the diseases which affect both animal and vegetable sources of the necessaries and conveniences of human life. Such diseases, even if not communicable to mankind, may imperil the food-supply of nations. The famine in Ireland in 1846 and 1847, resulting from the ravages of the potato-disease, entailed a vast sum of death and misery. Science has done much to clear up the origin of plagues

of this kind and, when the cause has been found, science can often supply the weapon with which the enemy can be overcome or held at bay.

When spending a summer holiday in Jersey, I watched with interest the operation of spraying tomato-plants with Bordeaux mixture. This operation, now readily performable by unlettered peasants, presupposes an immense amount of scientific work, the great bulk of which was performed entirely without reference to any specifically utilitarian application.

There is a certain type of mind whose possessors look with disfavour and some contempt on scientific investigations and theories unless they can see that the results are going to be immediately useful, that is, useful in the sense of being economically valuable, capable of estimation in terms of pounds, shillings and pence.

It is generally best not to attempt to argue with people of this kind but, if we are disposed to reply to their objections at all, we might point out to them that they are generally quite ready to spend time and thought and toil over some piece of business by which they may secure, let us say, a thousand pounds without having previously decided on the precise use to which the thousand pounds is to be put. They are quite content to know that such a sum has the potentialities of use in a great many different directions and that it is pleasant to have it in reserve, even if no immediate application for it is in sight. So every little piece of genuine scientific discovery, anything which helps to suggest a new theory or to refine or corroborate one already accepted, is an addition to the capital of knowledge which, if not required for immediate use, can be passed to the reserve fund.

In speaking of animal and plant diseases and the application of science to human welfare by giving knowledge, and the power that knowledge brings, concerning them, it is natural for us, as members of this Society, to think of one of the most distinguished of our former Presidents. The work of Sir Daniel Morris furnishes as good an example as could readily be found, of great contributions to the well-being of our race effected by the application of science to questions of Economic Botany.

Water, abundant in quantity and pure in quality, is one of the prime needs for a healthy and happy life.

To furnish a great modern city with such a supply needs the co-operation of the geologist, the engineer, the chemist, the bacteriologist and other workers in science, each of whom contributes his share to the great task.

Cleanliness, in urban conditions at least, depends upon there being plenty of water. It is said that cleanliness is next to godliness, and indeed godliness and dirt do not often dwell together.

The other primary needs of human life of which I spoke are warmth and shelter.

It will be unnecessary to elaborate in detail the part that Science has played in providing us, in this variable climate of ours, with the warmth we need.

To take a single example, I have recently had occasion to take counsel in the matter of constructing a course of scientific training for gas engineers. Even for those who are to be privates or non-commissioned officers in that calling, a quite considerable scientific equipment is needed and many branches of science, which at first sight might seem unrelated to their work, are found on closer scrutiny to have an important bearing upon it. In the higher ranks this is, of course, more conspicuously the case, and for the few who will be commanding officers a long continued and very thorough scientific education is necessary.

In equal or greater degree this is true of the electrical engineer and science, I mean apparently abstract pure science, has contributed in innumerable ways to providing our homes with the genial warmth that is so welcome in these November days.

Of shelter, having regard to the acute and wide-extended housing shortage, it may be wiser to say nothing.

Returning again to the subject of food, it is obvious that the contributions of science to solving the problems of increased production would be largely ineffective if the methods of transport and distribution had remained unchanged. Hence we must admit that Science has made a positive contribution to human welfare in making possible the steamship, the railway train and the motor lorry. Again, we must not forget the methods for the preservation of food which have become possible through Science, such as sterilisation, cold storage and the like.

Some methods of preservation, such as the salting of fish and the making of pemmican from meat, probably originated in happy accidents and were improved by slow degrees. Science can explain afterwards why such methods are effective, but was not absolutely necessary to originate them. On the other hand, such common-places of to-day as a joint of frozen lamb or a tin of sardines could never have been found in the shops had there not been a long, disinterested study of science by which were established principles and laws susceptible of application later on to the production of these articles of everyday consumption.

Thus, in the matter of food, we owe to Science production on a scale that, without it, would have been impossible, preservation and storage of much of the food thus produced and the rapid, large-scale transport and distribution which brings to Bournemouth meat from the Canterbury Plains of New Zealand, salmon from Alaska, peaches from California, and makes possible the sustenance of a population of 90,000 on what, little more than a century ago, was an uninhabited waste.

Besides the essentials of food and warmth and shelter we, who are met in this hall this afternoon, enjoy innumerable comforts and conveniences which we owe to Science, but of these I

do not speak. It may be held that many of these comforts and conveniences to which we have become accustomed and should not like to be without, are not essential to welfare in the highest sense and may even be antagonistic to it. This, however, is a question which I do not feel it my present duty to discuss. It has, however, been already sufficiently established that Science had made substantial contributions to human welfare as regards the promotion of health, the battle with disease, and the provision of those fundamental material necessities which are indispensable for the maintenance of bodily life.

I am anxious to be scrupulously fair and not to claim for Science more than is her due. I must, therefore, point out that Science is only one factor in the provision of the benefits we have been considering.

Science is not working in a vacuum, but in a world of extraordinary richness and variety.

Science has aided man in getting more complete possession of his kingdom, but the kingdom itself was there before science was born. The riches of the land, the air and the waters are provided for us, all that Science can do is to make them more fully available.

And not only is the material on which to work thus provided but man himself is not an intellect only, but a creature compact of instincts and aptitudes, emotions and volitions, and these have their part in the work which, on a partial view, we are apt to ascribe to Science alone.

As an example, let us consider the microscope. Without the Science of Optics there would have been no such instrument and Science has also been at work in bringing near perfection the optical glass used for its lenses, the metals used for its tubes and stages, the rack-work and fine adjustments, the micrometer scale and the adjuncts for illumination. But all sorts of aptitudes and skills, acquired through a long process of evolution, are no less necessary. These aptitudes and skills are a product of evolution none the less because evolution has been at work on the tradition of the craftsman rather than on the craftsman himself considered biologically. A Kelvin plans an elaborate instrument for the practical application of electrical principles which he himself did so much to elucidate. But an effective Quadrant Electrometer could not have been constructed unless there had been available skilled workmen, experts in their craft, heirs to a tradition of craftsmanship extending back to Tubal Cain; if, indeed, he were the first to work in metals. And moral qualities, of earnestness, sincerity, self-denial and integrity were also necessary both to sustain the man of science in his labours and to actuate the executive workmen who gave a material embodiment to the ideal instrument as conceived by Kelvin. Carlyle said that a carpenter employed in his house at Chelsea broke every commandment in the Decalogue with each stroke of his hammer.

This is a picturesque exaggeration of the immoral conduct of the bad workman who does his work carelessly and has no interest in it except as a wage-earning employment.

But the good workman keeps the commandments by doing his work well and is entitled to a share in the credit awarded to the pure scientist.

It may be noted, by the way, that a high degree of skill in the actual handling of instruments, tools and materials is often associated with scientific ability: there are members of our Society of whom this is true.

Let me take as a further example of this point the progress that has been made during the present century in the conquest of the air. Whether the aeroplane will on balance prove to contribute to human welfare or not is another of the questions I will leave without attempting to answer it. In any case the realisation of aerial navigation required not only Science but also Virtue. Courage is the original and fundamental virtue, that which is proper to Vir, to a man. Without courage of the highest order the aeroplane would have remained an interesting speculation upon which papers would have been read before scientific societies, and there an end. Mathematical, Physical and Chemical Science had to be brought to a high state of development before the construction of a heavier-than-air flying machine could exist even as a carefully detailed specification with scaled diagrams. But suppose a committee of scientists, skilled in all the sciences bearing on aerial navigation, had met to discuss the matter. One of them, a man of profound insight, had an extraordinary power of synthesising the contributions of his specialist brethren. An aeroplane, as perfect as any 1924 model, was designed. Now let us further suppose that the great inventor and all his fellow-men of science, were elderly, short-sighted, corpulent and timid.

Would not the whole thing have ended where it began unless there were available, first skilled craftsmen to construct the machine, and then other men, with youth, strength, agility, quickness of hand and eye and, above all, unconquerable courage, who were willing to use it?

Whenever humanity benefits on the large scale through scientific discoveries, as in the harnessing of the giants Steam and Electricity for the service of man, there is need for the help of those possessing many faculties other than the scientific. Without Science there could have been no railway system, but there also had to be available the brawn and muscle of the navvy, the trained skill of the mechanic, the special abilities of the organiser and administrator, the keen eye and firm hand of the engine-driver. Even such unpopular folk as the capitalist and the politician have had their humble part to play in the enterprise.

Having thus fully and frankly admitted that the credit for the promotion of human welfare by Science has to be shared with

other not less indispensable co-operators, I may with the more boldness say that the blame for what often seem the evil consequences of science must also be shared.

Most or all of our great manufacturing industries could never have arisen had not Science made such great advances in the last century or so. The rapid development of these industries has led to the concentration in certain districts of immense populations, who often live under conditions of housing and environment not at all conducive to their welfare. The tasks they perform are often monotonous and uninteresting in the extreme, and, in spite of all we may say about progress, in spite of such alleviations, themselves the product of science, as the cinema and broadcast programme; the lot of many of our fellow-countrymen to-day seems but a poor affair as compared with that of some at least of their ancestors, who carried on some craft, based on tradition rather than on science, but in which each could take pride.

The smoke-nuisance alone is responsible for an enormous total of misery, dirt, mental depression, and bodily ill-health. Had scientific processes not been exploited, this smoke-nuisance would not have come into being or, at least, would not have attained its present proportions.

But we, on behalf of Science, may justly claim that she can find, to a large extent has found, remedies for the evil, and that it is for the men of business, the politicians, the National and Municipal executives, to take the necessary steps to put these remedies into action. Science supplies guidance but the motive-power has to be supplied otherwise.

The sixth anniversary of Armistice Day, celebrated so recently, reminds us that in the briefest discussion of our present subject we cannot omit reference to the relation of Science to War. In ways of which we have all heard, and probably in other ways that have not been made public, all the resources of science were brought to bear on the improvement of weapons of offence and on new methods of dealing death and destruction. High and yet higher explosives were produced, deadly and yet deadlier poison-gases were discovered and manufactured. The range of artillery was greatly increased. The Zeppelin and other airships, the aeroplane, the submarine, the tank, were brought into action. Death or disablement was the lot of vast multitudes, not only of combatants, but of the civil population. Glorious works of art, priceless libraries, historic buildings were destroyed. There had been innumerable wars in the previous history of mankind but not one on such a scale, and certainly not one to which science had made so many and such various contributions.

But there are other sides upon which we must look lest we should say in our haste, " If Science can have such terrible issues, away with it. The Middle Ages were wise in regarding scientific investigators as traffickers with the Devil and in treating them accordingly."

Let us remember the beneficent side of the results of Science during the very period in which so many horrors were being transacted.

The diseases which in previous wars had been more fatal than the weapons of the enemy were, to an extraordinary degree, kept in check. Wounds which would have been certainly fatal a few years earlier were successfully treated; and the general health of the troops was maintained at a relatively high level, when regard is had to the conditions under which so many of them had to live. And, apart from all this, it is the opinion of many of us that had Science not forged for the Allies the sword which at long last beat down the Central Powers to their knees, had the issue of the war been other than it was, and had Germany and her false ideals triumphed, the highest interests of humanity as a whole would have received a blow to avoid which all the losses and sacrifices of the war were worth while.

Science places in the hands of the human race a sharp tool, whether the tool will be used for good or ill depends in the main upon the moral and spiritual level which the race, or that portion of it which has the effective leadership, has attained. This tool is ever being sharpened and made more efficient as an instrument whether for good or for evil.

Terrible as is the prospect we can hardly refuse to admit the possibility that our civilisation may, so to speak, commit suicide in some future war even more terrible than the Great War of 1914-1918, but, on the other hand, it does not seem possible that it should be overwhelmed, as many earlier civilisations have been, by attacks from hordes of peoples of a lower culture.

The whole question as to whether a balance of good or evil has resulted from the application of science to war is not easy to settle. It is a simple matter to point to the terrible side and give statistics of the destruction of material objects and human lives in the last and greatest of wars. But it is only fair to remember that there were wars in pre-scientific days. The flint axe, no doubt, made very nasty wounds and no antiseptic treatment was available. Moreover, if early wars were on a relatively small scale they were exceedingly numerous and often resulted in the defeated tribe being completely wiped out by the victors.

Here I will leave the matter, claiming that at the least and worst, the application of science in times and to the arts of peace has done more to enhance human welfare, than its application to the arts of war has done to diminish it.

Thus far I have dealt only with what I may call the products of science, some of them unintended by-products of its action. It now remains to consider certain more direct influences that science exerts.

And here I may, perhaps, venture to digress a little to remark that while we have the noun Philosopher and the verb to philosophise, derived from or connected with the word Philosophy, we

are less well provided in the case of Science. We have, it is true, the word scientist, or we may speak of a man of science or a scientific man, but we have no verb to match the word to philosophise. To philosophise is to exercise the characteristic function of a philosopher, to do that which entitles him to be called a philosopher. It would seem that there should be some characteristic function which the man of science has to perform and that some verb is required to express this. The need, apparently, has not been felt or a word would have come into use.

We may classify persons with regard to science into :—

(1) Those who actively pursue it and contribute, or strive to contribute, to its progress by their investigations;

(2) Those who are content to follow in the track of the pioneers and endeavour to grasp principles and learn facts which those pioneers have discovered.

(3) Those who take no active interest in science in either of the preceding ways, though they are more or less influenced by the existence of a body of scientific doctrine in the atmosphere of the society in which they live.

These classes are not, however, mutually exclusive. A given person may belong to two or even all three of them at the same time. A man may, for example, be an astronomical worker who, by his observations or manipulation of the observations of others, makes substantial contributions to astronomy. With regard to Chemistry he may be a student who follows afar off, but with intelligent interest, the fascinating story of chemical research. In Biology he takes, it may be, no special interest, but his outlook on many matters will be affected by the Biological theories which have passed into what I have called the social atmosphere. For example, his views of the history of the human race are different from those which a man of similar culture would have held in pre-Darwinian days.

One of the greatest and most beneficent gifts of Science to humanity has been deliverance, partial as yet, from certain awful terrors. As a first example, let me instance eclipses of the sun. I remember that in 1900 when a large part of the sun was eclipsed, I was as much interested in watching the watchers of the eclipse as in watching the eclipse itself. A number of cab-men and others of that class had provided themselves with pieces of smoked glass and were viewing the striking phenomenon with evident interest but no alarm. In earlier times, not only working men, but kings and nobles, have been terror-stricken by eclipses and other unusual celestial phenomena. "To the ancients eclipses were without the order of nature, — terrible presages of dire events; and at Rome, at one time, it was blasphemy and punished by law to talk publicly of their being due to natural causes." An eclipse does not last long and probably the fear and excitement occasioned by them soon passed away.

A great comet would have a more lasting effect. " The appearance of Halley's comet in 1456, just as the Turks had become masters of Constantinople and threatened an advance into Europe, was regarded by Christendom with a superstitious dread and to the Ave Maria was added the prayer ' Lord, save us from the devil, the Turk and the comet.' "

But a far more hideous terror was the fear of witchcraft. In the 15th and 16th centuries tens of thousands of men and women, but especially women, were suspected of witchcraft, subjected to all sorts of tortures to extort confession and then often burnt alive. A single instance will suffice. " The Archbishop of Trèves avenged the coldness of the spring of 1586 upon 118 women and two men burned together." Not only on the continent of Europe, but in England and Scotland like horrors were perpetrated, and the Puritan settlers in New England continued freely to execute witches up to the end of the 17th century. Immense as was the sum of human agony suffered by those against whom the charge of witchcraft was brought, it is not of that I am now thinking. The whole population must have lived under the shadow of dread, in some cases dread of being falsely accused; and in all or nearly all the dread of suffering through the diabolical acts of the witches who were believed to be so numerous and powerful. More causes than one doubtless contributed to the removal of this awful obsession, but I think the chief must have been the advance of Science. As natural law began to be better and better understood the belief in witchcraft withered away. It was not destroyed by set argument, but by the gradual formation of an atmosphere in which such a belief could no longer be maintained. Certain superstitions still linger among us, some have shown signs of recrudescence of late, but I suspect that they are not often held with much conviction. A loosely held superstition may, on occasion, give a rather agreeable emotion and some people rather cherish them as harmless and picturesque survivals.

But besides destroying or keeping well in the background many of the old dreads which modern man has inherited from his remote ancestors, Science makes, in various ways, direct positive contributions to human happiness.

Let me explain what I mean by direct contributions by contrasting them with indirect contributions.

Wireless installations enable many thousands of people to hear music, some of which is good, and to derive pleasures or alleviations of pain and loneliness that would otherwise have been impossible for them. The whole wireless system is undoubtedly a product of science. It is not an accidental discovery. Without a highly developed body of mathematical, mechanical and electrical doctrine, the wireless transmission, as we have it to-day, could not have come into being. But the aerials, the valves, the crystal-sets, the ear-phones and all the rest, are products of

Science and the benefits which are derived from the use of these products are, in my sense of the term, indirect benefits.

But the scientific pioneer, the man who makes an addition to knowledge, who marshals apparently disconnected facts into order, who shows empirically discovered laws to be deducible from some great generalisation; such a man probably experiences one of the highest and purest of human satisfactions.

"Then felt I like some watcher of the skies
When a new planet swims into his ken;
Or like stout Cortez, when with eagle eyes
He stared at the Pacific—and all his men
Look'd at each other with a wild surmise
Silent, upon a peak in Darien."

Such mountain heights are for the few, but precious in their measure are the satisfactions of the lowly student who follows science for the sake of science herself, and not from any self-regarding motive. Although he walks on the road which others have made and never puts his foot where no man has trod before him, yet he also learns something of the inexhaustible richness and variety of the world, and gets some grasp of the broad principles of which particular facts are exemplifications.

There is no need to seek to justify the pursuit of science by pointing to the material ends it sometimes may be made to serve, to the comforts or conveniences which its products may furnish or even to the agreeably-toned emotions which its followers may experience.

It is noble and worthy in its own right. Truth is one of the august trinity to which Beauty and Moral Goodness also belong and in following these we find our welfare more truly than in the multiplication of our possessions.

Science not only enables man in some measure to control his environment but it gives him a certain degree of freedom from his environment.

Through the application of the laws which Science has revealed we have some power, feeble though it be, of reconstructing the past and of forecasting the future. Thus we are to some slight extent set free from the Time-Process and have glimpses of a larger and calmer world than that of everyday life.

If this is too high a claim it is at least true that, by contemplating the wonders our favourite science displays to us, we realise the comparative insignificance of some of our minor worries and troubles.

Note, please, that I make these claims for science as pursued by those who love it, whether they are great original workers or humbler folk.

It is, I think, too often forgotten that there are two factors, the intensive and the extensive, which go to make up what we call the Advancement of Science, or Scientific Progress, even

when we exclude from consideration increased application of Science to the Arts and Industries.

Science is knowledge of a certain quality and knowledge requires a knower.

Now it is conceivable that fresh discoveries might go on being made, new and improved hypotheses adopted, larger and more adequate theories built up and that in spite of this the actual number of people possessing this knowledge might get smaller. Let us imagine what mathematicians call a limiting case. Suppose that in the planet Mars there is a race of beings somewhat like ourselves who have always entrusted the study of science to a small hereditary caste. As knowledge increased in scope it became concentrated in few and fewer individuals until at last there is now one single Martian scientist who has succeeded in doing what Bacon boldly essayed. He has taken all knowledge to be his province and his attainments exceed those of all the Universities, Learned Societies and Academies in our planet. As his knowledge is far greater than any ever reached on earth the intensive factor is at a maximum, but the extensive factor is at a minimum.

The rest of the inhabitants are engaged in commerce and industry and all sorts of other occupations, they carry out with mechanical accuracy the instructions they receive but there is not among them the slightest tincture of science. There are a hundred millions pairs of hands but only one fully developed brain. We shall see, I think, from this parable, that it is important that scientific knowledge should be widely diffused as well as increased in amount.

If I am right in saying that science adds to the worth and dignity of man, any agency that furthers the extensive factor is a beneficent one.

Such an agency is the Bournemouth Natural Science Society. Among our past and present members, nay, in my present audience, are honourable examples of those who have added to human knowledge by their own work, but our chief corporate function is rather to increase the number of lovers of Science and of sharers in that enhancement of worth and dignity which I claim to be the chief of her gifts, and of more real and lasting importance than the contributions, valuable as these are, which she makes to our comfort and convenience.

It yet remains to consider certain charges which may be, or have been, brought against Science.

The first of these is that Science diminishes the power of its votaries for appreciating the glories of Art and Literature, that it makes for narrow specialism and is antagonistic to a broad and humane culture. That it would be possible to find instances in support of this charge, I am willing to admit, but it would be equally possible to find cases in which other interests than the scientific have been so exclusively cultivated that a warped and

unsymmetrical personality results. Are there not men of business who have no outlook beyond the office? May not scholarship degenerate into dry pedantry? There are artists and musicians on whose behalf the possession of the "artistic temperament" has to be pleaded because it, like Charity, covers a multitude of sins.

The Mrs. Jellaby of Charles Dickens is, no doubt, a caricature, but even zeal for humanity in general may be carried so far as to entail neglect of the ordinary obligations of family life, and religion itself has had narrow, hard and bitter exponents.

Such a reply to the charge that Science cripples and distorts its devotees is, I admit, of the "tu quoque" or "you're another" type. It can, however, easily be supplemented by producing examples of men eminent for scientific attainments who have also had wide interests, keen æsthetic appreciation, and, sometimes, considerable powers of artistic accomplishment. One of our former Presidents mentioned the late Lord Avebury as an example of this completeness and another suggested to me that the great names of Aristotle, Leonardo da Vinci, Bacon and Pascal might be given as illustrations and reminded me that Goethe's countrymen claim that he was a great original scientific genius as well as a supreme artist.

It happens that the same number of Nature in which appears Sir David Bruce's Presidential Address also contains an obituary notice of the great chemist, Sir James Johnston Dobbie. Of him Dr. Lauder says, "In an unusual degree Dobbie combined the patience and lucidity of the born teacher, the fertility of ideas and resourcefulness of the research worker and the clear common sense, critical yet always constructive, of the wise administrator. In addition to all this he had much of the scholar's temperament. Reading widely, but never without fine discrimination, he was, indeed, the "full man" of Bacon's aphorism, and his mind was a storehouse of information over a wide region of literature and history. To the end of his days the classics were his constant solace and relaxation, and he was a living negation of the supposed antipathy between science and the humanities."

Again, it is sometimes asserted that Science has made life poorer by removing glamour and mystery from the world.

Its explanations, its insistent search for causes, its reduction of the vague and formless to the clear-cut and distinctly outlined, of the supernatural to the natural; are represented as destructive of the spirit of romance and poetry. That which in the dim twilight of an earlier age loomed large and gave delicious thrills of wonder and awe has, it is said, become commonplace and prosaic when brightly illuminated by the dry light of Science. To this accusation I reply that all explanations are but partial and relative, and the strange, misty wall which, as in Lord Dunsany's beautiful tale, is the boundary of the fields we know, has, at the most, only been pushed back a little.

Beyond it, the blue mountains of Elfland can still be glimpsed and the horns of Elfland heard. As the diameter of our circle of knowledge increases, so also does the circumference which marks it off from the region of the unknown.

In truth, the occasions for wonder and awe have been enormously increased by the growth of Science. What vistas of beauty and grandeur have been opened up by the revelations of astronomy, and again, in these last years, by the researches of the Braggs into the structure of crystals.

The insight we are now getting into the electronic constitution of matter shows how infinitely more finely grained is the world than we had supposed it to be.

There is something that calls us to our knees in the realisation of the marvellous unity in diversity that pervades the universe, a universe so much grander in every way than our ancestors ever dreamed.

There is, I am told, a nervous affection called Agoraphobia, or dread of open spaces. Its victims are stricken with terror in the market place or anywhere away from the friendly shelter of encompassing walls. I suppose it is a mild form of this that makes some think they would be happier in the old universe consisting of a flat earth covered by an inverted bowl of sky, a real solid firmament not far away, than on an earth careering through infinite space. It is possible that some persons felt relieved when they read in Eddington's " Space, Time, and Gravitation " that perhaps the universe is not really infinite but has a radius of the order of ten million million times the distance of the earth from the sun.

It is not in Astronomy and Chemistry alone that these glimpses are afforded us into realms of wonder beggaring by comparison all the fairy-stories of the past.

To Geology the scratches on a pebble are shorthand notes of an epic poem whose hero is the Frost-Giant, and, in the volume which the biological sciences open for us, countless romances are inscribed.

Yet another objection remains to be considered. Science, it has been alleged, is essentially the enemy of Religion and, since Religion is of quite infinite importance, any contributions that Science may make to Human Welfare in its material or even its intellectual aspect are insignificant as compared with the evil it works in undermining religious Faith.

To reply adequately to this charge would take all and more than all of the time allotted to this address, and so my answer must be of the baldest and briefest.

Men, as we know them, are soul and body and clothes. So the Spirit of Religion, if she would dwell among men, must be incarnate in a body and be provided with a garment.

I maintain that Science is no enemy to Religion herself, the religion of doing justice and loving mercy and walking humbly with God, but with the outworn clothing of Religion it has from

time to time been in conflict and has been in the highest degree beneficial by compelling the stripping off of external trappings which had grown foul with abuse, or which served but to constrict the limbs and impede natural and healthy growth. There have been, it is true, irreligious and immoral men of science, just as there have been irreligious and immoral poets, artists, politicians and men of business, but there have also been many examples of men of science of blameless lives and of humble and sincere piety.

We are living at a time when Science is making very rapid advance along a number of fronts. Recent discoveries in Physical Science suggest that hitherto untapped reserves of energy will, before long, be made available for doing the world's work. The Biological Sciences have long passed beyond the natural history stage of description and classification. Veil after veil has been removed from the face of Isis, and the great mysteries of Life are being studied at far closer quarters than of old.

As knowledge of environmental influences and of heredity increases, the sceptre of the world is being more firmly grasped by the hand of Man. One foresees that the course of Evolution will be to an increasing extent guided and controlled by human intelligence and that the influence of Science upon human welfare will become far greater than it has ever yet been.

Whether this will be for good or ill cannot with certainty be foreseen.

If growth in wisdom and virtue more than keeps pace with growth in knowledge, it will be well with us, none can say how sublimely well: but if not, it will be ill with us and none can say how profoundly ill.

And now my time and your patience are almost or quite exhausted. I have attempted to treat the subject of my address in a judicial spirit rather than as an advocate. I have admitted that not every addition to our comfort or luxury is really an addition to our true welfare, for this welfare has intellectual, æsthetic, and moral elements as well as material ones. I have also argued that other aptitudes and faculties of our nature, other legacies of our hereditary culture than the purely scientific have to co-operate with Science, strictly so called, in promoting the welfare of mankind. I have examined certain charges that have been brought against Science and the scientific spirit, and have concluded that these charges are not, to any considerable degree, proved or provable against her.

To sum up the whole matter: Science, to promote whose study and advancement this Society exists, is rightly judged, all proper allowances and adjustments having been made, to have contributed much to Human Welfare. By Science I mean exact, systematic, and unified knowledge, and I regard Human Welfare as consisting in the maintenance of healthy life in successive generations, in the conservation and amelioration of the social structure, and, finally, in attaining Truth, enjoying Beauty, and doing that which is Right.

Selected Papers.

"The Bournemouth Plateau and its Palæoliths."

By Henry Bury, M.A., F.G.S.

Looked at from the broad standpoint of the physical geographer, the country round Bournemouth consists of an extensive and extremely level plateau intersected by numerous valleys; but so little attention does the general public pay to landforms that, although a large proportion of the inhabitants live actually on this plateau, they are most of them as blissfully unconscious of the fact as "le Bourgeois Gentilhomme" was that he had been talking prose all his life. Even in the "Bournemouth Natural History" this structure is very briefly dismissed, with no serious attempt to understand its origin. It is worth while, therefore, to examine its form and extent in some detail, and then to see what can be done towards solving the difficult geological problems connected with its history.

First of all then let us notice that, although the plateau is divided by valleys into several fragments, and much of it ha been removed by the sea, yet its remains stretch from Southbourne to the Corfe Hills, and from the sea cliffs to Moordown. All this may reasonably be regarded as having at one time formed a continuous whole; but for our purposes it is advisable to treat it as consisting of three main portions, which do not altogether correspond with the more obvious geographical divisions :—

(1) *The Corfe Hills.*

(2) *The Upper Plain,* comprising Canford Heath and Wallis Down; Newtown; Upper Parkstone; and Stromboli Hill.

(3) *The Lower Plain,* a roughly triangular area, with its base in the sea cliffs from the Sandbanks to Southbourne, and its apex at Moordown.

A very good idea of this Lower Plain can be obtained by taking a series of tram rides from the Square. It is then seen to extend eastwards from Lansdowne to Southbourne, with only one break at Boscombe Gardens; northwards from the top of Richmond Hill to Moordown, with one or two slight undulations in Winton; and westwards from St. Michael's Church to Branksome Station and the Bourne Valley Potteries; while if we push on beyond the latter, we find the level surface of the plateau interrupted by a slight but obvious hill separating (by a rise of about 30ft.) the Lower Plain of the Poole Road from the Upper Plain of Upper Parkstone and Constitution Hill. A similar break in levels can be seen without much difficulty between Winton and Talbot Village (Wallis Down) and again at Stromboli Hill; and thus we realise that, at the three points where the Upper and Lower

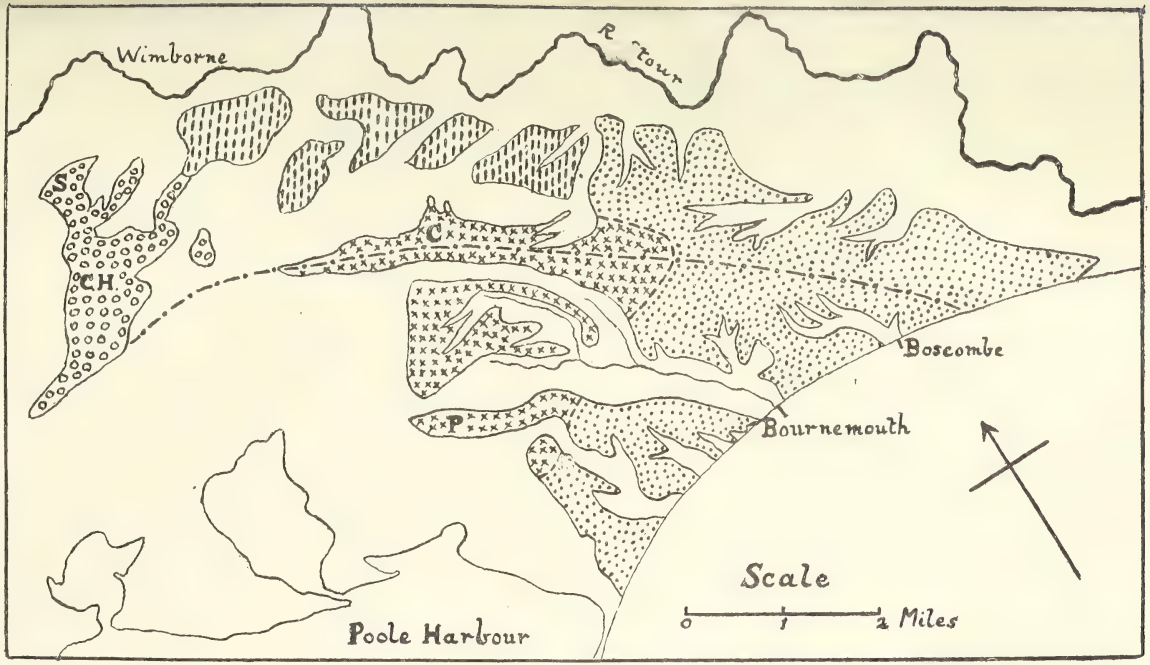

Fig. 2. Sketch Map of Bournemouth Plateau.

- Upper Plain. / Lower Plain. } Main Plateau.
- Watershed.
- Corfe Hills.
- Terraces of River Stour.
- 150 ft. Bluff.

C. Canford Heath Plateau.
C H. Corfe Hills.
P. Parkstone Plateau.
S. Sleight.

This figure is taken, by permission, from Proc. Prehist. Soc., E. Anglia. Vol. IV., Pt. 1.

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Plains approach one another without interference by valleys, they are separated by a hill or bluff, the importance of which will appear later. It may be called the " 150ft. bluff " in recognition of the fact that its base is everywhere about 150ft. above sea level.

Further examination shows that the Plateau has a main watershed running almost parallel with the Stour, and that along this watershed, it slopes gradually down from the Corfe Hills (285ft.) to the Boscombe cliffs (130ft.) with no abrupt change of level except at the bluff just mentioned, and with gradients of from 10ft. to 18ft. per mile. Such gradients, it should be remarked, though imperceptible to the eye, are considerably in excess of those of such rivers as the Stour below Wimborne (5ft. per mile), or the Avon below Ringwood (3ft. per mile). On either side of the central watershed the gradients towards the Stour and the cliffs are greater, but still very moderate (30-50ft. per mile).

Although the sea now forms the southern boundary of the Lower Plain, yet we have every reason to believe that in Pleistocene times there was a Solent River in its place, joining the Frome to the Solent, and only reaching the sea at or beyond Spithead, so that it is permissible to regard the whole plateau as having at one time formed a wedge or spit of land, with slight gradients, and probably low elevation, occupying the angle between the Stour and the Solent River. This Plateau is everywhere covered by a layer of gravel, usually only a few feet thick, as can be very well seen in the cliffs; and underneath that is a great thickness of sands and clays. The latter are the well-known Eocene strata of the Hampshire Basin, but the gravel is of much later date—certainly no earlier than the close of the Pliocene, and on the Lower Plain at least (and probably elsewhere as well) of Pleistocene age.*

Not only are the sands and the gravels of different date, but it is easy to show that the former had been much denuded and reduced to a more or less uniform plain (which cuts across the original lines of stratification) before the latter were deposited upon them. In our inquiry, therefore, into the nature and origin of the Bournemouth Plateau we have to consider two problems (1) What planed off the Eocene Beds? (2) How were the gravels laid down on the plain so formed? Nearly all writers on the subject treat these two problems as one—assuming that planation and deposition were effected by the same forces, and at so nearly the same time as to be practically contemporaneous; but while this is doubtless true in some cases, it is not necessarily true anywhere; and an attempt will be made later to prove that, on the Lower Plain at least, there was a long interval between the two processes.

* Care must be taken not to confuse some irregular beds of Eocene gravel, seen in our cliffs, and consisting of much-rolled and unstained pebbles, with the subangular and deeply stained Pleistocene gravel above.

Leaving this question on one side for the present, we find a wide difference of opinion among geologists as to the nature of the forces involved. All are agreed that water has been the main agent, for nothing else could have effected the planation, or brought (and deposited) the gravel; but whether marine or river action is to be invoked is a problem very difficult to solve. Clement Reid and Osborne White, to whom we are indebted for the two editions of the Geological Survey Memoir,* believe in the action of rivers; but they give practically no reasons for their opinion, and leave many points unexplained. Codrington† and Hooley,§ on the other hand, are convinced that the sea has been responsible for all the more important features. According to the latter author, the sea invaded the valley of the River Solent at the close of the Pliocene period, and filled up its basin to 450ft. above present sea level. Then the land gradually emerged, and a gravel-covered plain was left sloping gently down to the Solent River on either side. This emergence proceeded steadily until the sea reached a level of 150ft. O.D., when there was a pause, during which a sea cliff was cut all the way from Wareham to Goodwood; and it is a remnant of this cliff which persists as the 150ft. bluff at Bournemouth, while the Lower Plain, with its layer of gravel, was formed under the sea at the same period. A further rise of the land soon afterwards laid this plain bare, and the sea continued to retreat until it reached Spithead, or perhaps some point beyond. But with these later stages we are not here concerned.

In Hooley's hypothesis thus briefly outlined (and Codrington's is substantially similar) there are several points to criticise. In the first place, both these authors represent the Bournemouth Plateau as part of a plain sloping from the north, with no relation to the river system. But this is inaccurate, and ignores the watershed of the plateau, with its obvious relation to the Stour and the Solent River. Secondly, it is open to question whether the gravel ever spread at all uniformly over the whole Eocene area of the Hampshire Basin. If we examine the maps of the Geological Survey we find that the principal gravel sheets are closely connected with the larger rivers; while the areas drained by the shorter rivers (including those of the Isle of Wight) are for the most part devoid of gravel. This is quite intelligible if the latter is due to river action; but if, as Codrington and Hooley assert, it is marine, and was once ubiquitous, there is no obvious reason why it should have disappeared so completely from the regions of the smaller rivers.

The truth is, as all geologists recognise, that gravel has a powerful protective influence, and that areas once covered with

* "The Geology of the Country round Bournemouth." Mem. Geol. Survey. 1st Ed. 1902, 2nd Ed. 1917.

† Quart. Journ. Geol. Soc., Vol. XXVI. (1870), pp. 528-551.

§ Proc. Hants Field Club, Vol. IX. (1922), pp. 151-172.

it are not easily lowered by denudation. On the hypothesis therefore that the gravel is of river origin, we may regard the present distribution as differing but little from the original one, the larger rivers being the only ones which ever laid down extensive sheets of gravel; and we can understand why the areas so protected still form high ground; while the basins of the smaller streams (e.g., between the Stour and Avon), having no such protection, have suffered much from denudation, and form, on the whole, low ground. But on the marine hypothesis this distribution receives no satisfactory explanation.

There is another important factor which all the writers quoted have entirely overlooked, and that is the presence in this district of two distinct types of gravel. In both of them flint is the main ingredient, with a small amount of chert; but if we take samples of the smaller material (from $\frac{1}{4}$ inch to 1 inch diameter) we find in one type 25-30 per cent. of quartz pebbles, and in the other only about 2 per cent. In the former, too, larger pebbles of quartz and quartzite are common,* whereas in the second type they are extremely rare. Now it can be shown by analyses that these two types belong to opposite sides of the watershed, and that (except to a small extent on the summit of that watershed) there is no admixture between them. We are therefore justified in regarding them as belonging, the one to the Solent River, and the other to the Stour, especially as we find the materials for the former type in the tertiary gravels bordering the Frome (along the line of an Eocene river), whereas they are almost entirely absent from the Eocene beds of the rest of the Hampshire Basin. That the two types could have remained so distinct if all the gravels had been of marine origin is practically out of the question; but of course if they are fluviatile the separation is exactly what we should expect.

So we may sum up the evidence on the subject of the "marine" theory as follows:—

(1) The Plateau gravel is accumulated especially in the neighbourhood of the larger rivers, and there is no reason to suppose, as Codrington and Hooley do, that there was once a continuous sheet of it over the whole area.

(2) The Bournemouth Plateau is not, as they represent, part of a plain sloping down from the north, but shows a decided relation to the rivers on either side of it.

(3) Each of the two rivers brought down its own type of gravel, and these two types remain remarkably distinct over almost the whole plateau.

The marine theory might, by slight modifications, be made to cover the first two points, though they accord better with river action; but the third point appears to be conclusive.

* Granite, porphyry, and other igneous rocks are also not infrequently met with. See Godwin-Austin Quart. Journ. Geol. Soc., Vol. XIII, p. 45; and S. H. Warren Geol. Mag., Vol. VII. (1900), p. 411.

No one indeed supposes that such small rivers as we see at the present day could have produced these huge sheets of gravel; those of former days must have been, at certain seasons at least, much larger and more violent; and the most probable cause for such increase in size is to be found in the melting of snows at the close of one of the several Glacial Periods, which we know occurred in Pleistocene times. There is no evidence of actual glaciers south of the Thames, but there was probably a great accumulation of snow, and a deeply frozen soil; and when glacial conditions began to pass away, there must have been torrential floods every summer, and perhaps sheets of half-frozen sludge creeping down the hill-sides.

On the other hand there is no justification for the conclusion reached by Dr. Longstaff and Mr. Reginald Smith,* that all the Bournemouth gravel is part of a sheet of glacial material brought down from the north without regard to the existing lines of drainage; for as we have seen, the Bournemouth Plateau shows a definite relation in its form to the rivers on either side, while the composition of its gravel points to its being a product of the Solent River and the Stour, and affords no ground for invoking the help of any region north of the latter. The section on which this (to my mind) erroneous view is founded is a very arbitrary one, and pays no attention to local features.

Let us then, accepting provisionally the hypothesis of river action, inquire how far it can be worked out in detail. Clement Reid and Osborne White do not attempt this, probably because it involves an amount of speculation which would be out of place in official publications; but even a highly speculative hypothesis is often useful in calling attention to details otherwise liable to be overlooked, and no harm is done so long as we recognise its purely tentative nature.

Assuming that the rivers Solent and Stour are responsible for the plateau and its gravel, one of the first things we must do is to trace the former courses of these rivers, and see how it is that the gravel now lies, in many places, actually on the watershed. It may be suggested that, in the earliest stage, the Stour, running some 200ft. above its present level, swept far to the south of its modern course, and planed off the plateau of the Corfe Hills; and then, as the river gradually sank to lower and lower levels, it retreated northwards, leaving behind it the gravel sheet which covers that plateau. Meantime the Solent River was sweeping a wide curve to the north, so as to form the Upper Bournemouth Plain, leaving only a narrow, and probably low, strip of land between it and the Stour; but that strip, being unprotected by gravel, has now been denuded away, and is represented by the low ground which separates the Corfe Hills from Canford Heath. Just beyond that the two rivers may (though

* Proc. Geol. Assoc., Vol. XXVI. (1915), pp. 4-11.

we cannot prove it) have actually joined one another: and if so we may further conjecture that, as the rivers continued to cut their way to lower levels, their junction gradually shifted to the east, leaving the gravel-capped areas as deserted flood plains—the Corfe Hills on the right bank of the Stour, and the Upper Bournemouth Plain on the left bank of the Solent River. Such a "deferred junction" of two adjacent rivers by the prolongation of the spit of land between them (with or without an elevation of the land) is by no means uncommon.

When, owing to the deepening of its valley, a river deserts a former flood-plain, a minor drainage system is set up on the latter, consisting of small streams running roughly parallel to one another, but forming a considerable angle to the main stream. Now in this case the retreat of the Stour is supposed to have been towards the north, and the new drainage established on the deserted flood-plain ran, and still runs, nearly north and south. But the Solent River retreated eastwards, and it was then that some of the roughly parallel valleys traversing the Upper Plain in an easterly direction (upper branches of the Bourne, and the head of the valley running through Lower Parkstone to Branksome Chine*) were first formed. The great antiquity of these valleys is attested by the fact that some of them are beheaded by the escarpment which now leads down to Poole Harbour.

The next step was the formation of the 150ft. bluff. If we were to consider the Bournemouth area alone, we should feel tempted to regard this as a bank cut by the Solent River on its way to join the Stour near Moordown; but Clement Reid points out that it is just on a level with the old sea-beach at Goodwood, fifty miles to the east, and that there are similar bluffs at several intermediate points, as well as at Stokeford Heath, near Wareham; and he therefore concludes that it was formed by the sea, since no other agency can cut a cliff at a uniform level over such a wide area. But it does not by any means follow (as Clement Reid assumed) that the sea had already broken through between the Isle of Wight and the Purbeck Hills, for the cliff could have been cut in an estuary, and we have reason to believe that the Solent River persisted to a much later period. After that bluff was formed, the land rose again, and the Lower Bournemouth Plain emerged between the Stour and the Solent River; but although the formation of this plain must be attributed, in part at least, to marine action, it is still possible to question whether the gravel was deposited by the sea before its retreat, or by the rivers at some later stage. The separation of the two types of gravel, though hardly so complete here as elsewhere, is still an

* The true "Chine" does not extend much above All Saints' Church; and the valley above that point has no name on the map, but may conveniently be referred to as the "Branksome Valley."

argument in favour of the latter view; but further evidence will be forthcoming when we have examined the only fossils by which the gravel can be dated—the stone implements of primitive man.

The distribution of these palæoliths is peculiar. They are absent from all the higher parts of the Corfe Hills, but a considerable number have been obtained from one spot on its lower edge, at Sleight, near Corfe Mullen (see Map, Fig. 1, S.), 200ft. above the sea and about 120ft. above the Stour.* There is no authentic evidence of their occurrence on any part of the Upper Plain, but they are found on all parts of the Lower Plain, from 140ft. O.D. at Talbot Woods and Branksome Park, down to about 50ft. O.D. at Southbourne. But for those who believe in the river origin of the gravels, measurements should be taken, not from Ordnance Datum, but from the level of the nearest rivers, and on this basis we may assign to them a range of from about 50ft. to 115ft.

These palæoliths provide two lines of argument against Hooley's view that the gravels in question are marine, and that the implements themselves were washed off the shore by violent floods at the time when the 150ft. bluff was being cut. In the first place there is the general objection that there is no evidence either in England or in northern France of the sea ever having risen more than about 90-100ft. above its present level since palæolithic man appeared. It is very improbable therefore that the Bournemouth implements can be as early as the bluff, assuming that the latter is really a marine cliff. The second line of argument depends on the implements themselves. Most of them are deeply stained with iron, and more or less waterworn; but there is a residue of thoroughly sharp specimens (about 3-5 per cent.), and many (perhaps all) of these were found, not *in* the gravel, but in or on the sand underlying it. Such implements are usually unstained, and frequently show a creamy white patina on one side, and a bluish-grey tint on the other. Several such specimens have been found as far east as Boscombe, more than two miles from the foot of the bluff; and it is well-nigh incredible that they can have travelled so far from the shore without undergoing any abrasion, either during translation or from subsequent action of waves and tides. Even on such evidence alone, therefore, it would be more reasonable to suppose that an interval had elapsed between the retreat of the sea and the formation of the gravel, during which the plateau had been occupied by man; and there are other facts pointing in the same direction. On several occasions implements have been found in groups of three or four together; and Mr. Herbert Druitt possesses four specimens, all very similar in size and shape, which were found near together in Talbot Woods; three are unabraded, and all four are

* A collection of these implements may be seen in the Dorset County Museum at Dorchester.

made, not of flint, but of chert. Now chert implements, though far commoner at Bournemouth than anywhere else in the Hampshire Basin, do not exceed about 3 per cent. of the whole; and that mere chance should bring together in one spot four examples of this material, so closely similar in size and shape, is quite incredible. The man who made them must have lived close to the spot where they were found; and he certainly did not live in the sea.

But there is yet another important argument in favour of a time interval between the retreat of the sea from the bluff and the deposition of the gravel. The latter, which over most of the plain is seldom more than from 6 to 10ft. deep, increases greatly in thickness (up to 20ft. or more) at the heads of some of the minor valleys. This is still noticeable at Moordown and King's Park on the northern side of the watershed, and in Alum Chine on the south; and it must formerly have occurred in Branksome Park, where the two principal gravel pits (from which almost all the roads in the park were metalled) were at the heads of branches of the "Branksome Valley."* We are justified in concluding from this evidence that the minor valleys were outlined on the plain before the gravel arrived; and since the thickened gravel descends to within about 50ft. of the level of the Stour, we may infer that elevation of the land and erosion of the valleys proceeded to this point before a reversal of the process caused the rivers to rise again so as to submerge the Lower Plain (this time under fresh water) and deposit gravel all over it. But the submergence must have proceeded considerably beyond this level. The highest part of the Lower Plain is only about 115ft. above the nearest part of the Stour; but we find both at Sleight and at St. Catherine's Hill implements of the same age as the Bournemouth ones (principally early St. Acheul) buried in gravel which reaches 150ft. above the rivers. These extreme elevations may be due to one or two exceptional floods, but the Lower Plain must have been swept by water both on the upward and the downward movements of the river level; and to this may be due its very small percentage of unabraded palæoliths (about 3-5 per cent.) as compared with Sleight (20-25 per cent.). The collection from St. Catherine's Hill is too small for statistical treatment, but it seems to show a decidedly higher percentage than the Lower Plain.

There is no direct evidence as to the stage at which primitive man abandoned the plateau—whether he waited until the rising waters compelled retreat, or whether he was driven out (perhaps by advancing cold) at an earlier stage; but the latter is certainly suggested by the presence of implements with white patinas underneath the gravel; for by the analogy of Neoliths this implies that they had been lying exposed on, or very near,

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* See footnote p. 77.

the surface, for a considerable period before the gravel covered them. It must not be inferred from the high level attained by the rivers that the sea also stood very high at this stage. On the contrary the evidence of other districts is decidedly against a sea level in palæolithic times of more than 80-90ft. O.D. It is all a question of the position of the river mouth. When the 150ft. bluff was being cut the sea had invaded the valley of the Solent River as far as Wareham; but when gravel was deposited on St. Catherine's Hill the mouth of the river was probably much further east, and allowance must be made for its gradient. In this way a river level of 150ft. in the neighbourhood of Bournemouth will be found quite compatible with a sea level of 90ft. or even less at Spithead.

To sum up the views as to the origin of the Plateau and its gravels here expressed; the higher parts (Corfe Hills and Upper Plain) together with their gravel are the product of the Rivers Solent and Stour.* The sea formed the 150ft. bluff, and initiated the Lower Plain; but the latter was much modified by river action and subaerial denudation before the gravel sheet was deposited upon it. During the interval it was occupied by Acheulean man, but he seems to have abandoned it again while the rivers were still at a low level; and his implements lay on the surface long enough to acquire a white patina before the rise in the rivers caused gravel to spread not only over the Lower Plain, but over St. Catherine's Hill and Sleight as well.

In the above sketch of the probable history of the Bournemouth Plateau advantage has been taken of all the local evidence hitherto collected: but several of the alleged facts would be the better for confirmation, while it cannot be doubted that other evidence will be discovered by those who search diligently for it. It is, therefore, greatly to be desired that as many members as possible should take the matter in hand and endeavour to put the whole problem on more secure foundations.

It is impossible to lay down any definite rules for such research, but the following points, among others, require attention :—

(1) Careful note should be taken of the exact provenance of all sharp implements from the Lower Plain.

(2) Search should be made for implements from the higher parts of the Plateau (Upper Plain and Corfe Hills) where they have not yet been found.

(3) Analyses of the smaller material of the gravel should be made by independent observers in as many localities as possible, especially with a view to tracing the junction of the two types of gravel along the watershed.

* As in the case of the Lower Plain, there may have been a time-interval between the formation of the plain and the deposition of the gravel; but as yet there is no evidence on that point.

(4) On many parts of the Lower Plain two layers of gravel occur, the upper one with more clay than the lower. The meaning of this is not at present known, but careful mapping of the two layers and search for possible differences in their composition might serve to clear up the problem.

But these are only suggestions: the great thing is that members should lose no opportunities of examining every new exposure of gravel, and produce what evidence they can, remembering that "were it but the pitifullest infinitesimal fraction of a product" it all assists in that "promotion of the study of Science" for which our Society exists.

"The Planet Saturn."

(Abstract of a Paper by Instructor-Captain M. A. Ainslie, B.A., F.R.A.S., F.R.M.S.)

Some statistical details of the planet were first given, such as length of Saturn's year—29½ of our years; it is 9½ times as far from the Sun as the Earth is; the globe of Saturn is 9½ times that of the Earth in diameter; and again, it has 95 times the Earth's mass, while its density is only 0.63 that of water. It is curious how the figures 95 recur here. Diameter of globe 75,000 miles; it rotates in about 10 hours 20 minutes.

It is surrounded by a unique system of rings; we know nothing in all the heavens that can be exactly compared with them. The outer diameter of the ring system is 172,000 miles; the inner 115,000 miles. Inside the two outer bright rings, which are separated by the black Cassini division, comes the delicate crape ring, so called on account of its transparency, which allows a portion of the limb of the planet to be seen through it.

Early drawings of the planet were thrown on the screen, commencing with those of Galileo. In the imperfect telescopes of those days, Saturn was indeed a puzzle, and as the gradual change in the apparent breadth of the rings went on, the mystery was still further intensified. If at first, Saturn looked something like a globe, with two smaller ones, one on each side of him, then later on the latter were no more seen, and it had to be acknowledged that Saturn had devoured his own children! Then the lecturer took his audience gradually upwards to the exquisite drawings of modern times by De la Rue, Sir J. Herschel, the Rev. T. E. R. Phillips, and E. E. Barnard.

The nature of the rings was dwelt upon, it being stated that they are the only case of an absolutely plane surface that we are acquainted with in the heavens. Moreover, they are probably

the thinnest (in an astronomical sense) of any body we know of, the thickness being perhaps less than 50 miles. The various degress of opening were beautifully illustrated in the pictures, from the wide open elliptical space, divided by the Cassini division, down to the thinnest wisps of light seen projecting from the sides of the globe, when the Earth is in the plane of the rings. From observations made by the lecturer with the great 28 inch Refractor of the Greenwich Observatory, it seems that just when the ring is edgeways to us it actually disappears, and the globe shows for a very short time like Jupiter, without any appendage whatever.

The lecturer described the very remarkable and almost unique observation made by himself and Mr. J. Knight (quite independently), of the transit of Saturn across a 7th magnitude star, otherwise termed the occultation of a star by Saturn. The observation showed that the star was visible through the outer ring, with a certain diminution of its brightness. The variations in this indicated the points where the ring was very thin, or divided; and the flashing out of the star as it passed behind the Cassini division (which, of course, let the rays through) must have been a wondrously beautiful spectacle.

The comparatively large family of Saturn's Satellites was referred to, from Titan, the largest, down to Phœbe, and the doubtful Themis, the two latter discovered by photography. A curious property of this system is that under the Newtonian laws of gravitation, it is impossible for all the satellites to be " full " at the same time, or together—in other words they can never all be extended in one line, on one side of the planet.

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1910 Sept.-Oct. 1910	J. Donkin, F.R.I.B.A.
1910-11	Hy. Le Jeune.
1911 Nov.-Feb. 1912	Sir A. Brooke Pechell, bart., M.B.
1912 Apr.-Mar. 1914	Theo. Michell, M.Inst.C.E.
1914 Apr.-25 ...	R. A. de Paiva.
1914 Oct.-July 1917	R. A. de Paiva and Thos. Capper, M.A., B.Sc., Joint Secretaries.
1917 July-1925 ...	R. A. de Paiva.

Hon. Assistant Secretaries:

Apr. 1911-1912 ...	Theo. Michell, M.Inst.C.E.
May Mar. 1912-1914 ...	R. A. de Paiva.
1917-1918 ...	Geo. Grace, B.Sc., A.R.C.Sc.
1919-1920 ...	Wm. G. Boul, M.A., LL.D., D.C.L.
1920-1925 ...	W. J. Woodhouse, A.C.P., M.I.H.

Hon. Financial Secretary:

1905-8	J. H. Scott, M.E., M.I.M.C.E.

Assistant Secretary:

1909-25	J. F. Spencer.

Hon. Librarians:

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1909-1911 ...	F. I. Cooke.
1911-1912 ...	W. Munn Rankin, M.Sc., B.Sc.
1913-1919 ...	H. J. Ellis.

1919 Oct.-Mar. 1920 J. Omer Cooper, F.E.S.
1920 Mar.-Jan. 1921 Rev. C. O. S. Hatton, B.A., F.L.S.
1921 Jan.-25 ... Claude Lyon.
1923-25 ... ... Miss A. G. Veale, Hon. Assistant Librarian.

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1912-20 ... ... Hubert Painter, B.Sc., F.C.S.
1920-25 ... ... F. B. Taylor, B.A.

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1917 Jan.-July 1921 W. G. Wallace.
Jan. Dec. 1921-1922 ... No Curator.
1923 Jan.-Nov. 1923 Rev. C. O. S. Hatton, B.A., F.L.S., and Howard Lacey.
1923 Dec.-25 ... Rev. C. O. S. Hatton, B.A., F.L.S.

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1914 May-Nov. 14 Rev. Canon T. E. Usherwood, M.A.
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1907-May 18 ... Miss C. Agnes Rooper.
1918-22 ... ... Rev. C. O. S. Hatton, B.A., F.L.S.
1922-25 ... ... Howard Lacey.

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1914-15 ... ... R. Beck, F.E.S.
1915-Dec. 19 ... F. G. Penrose, M.D., F.R.C.P., F.Z.S., M.B.O.U.
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1916-25 ... ... Claude Lyon.

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1906-14 ... ... W. T. Ord, F.G.S.
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1917-18 ... ... Hy. Kidner, F.G.S.
1918-20 ... ... W. Munn Rankin, M.Sc., B.Sc.
1920-23 ... ... W. J. Woodhouse, A.C.P., M.I.M.
1923-25 ... ... Henry Bury, M.A., F.L.S., F.G.S.

Mathematical:

1921-22 ... ... W. H. Scott, M.A.
1922-25 ... ... B. M. Peek, M.A., F.R.A.S.
Mathematical amalgamated with Astronomical 1924.

Microscopical:

1909 Mar.-10 ... J. R. L. Dixon, M.R.C.S., L.R.C.P.

Microscopical and Zoological:

1910-11 ... ... H. B. Wells, F.R.M.S., and A. W. Thomas, M.D., M.R.C.S.
1911 Mar.-12 ... G. E. J. Crallan, M.A., M.B., M.R.C.S.
1912-13 ... ... H. B. Wells, F.R.M.S.

Microscopical:

1913-14 ... ... H. B. Wells, F.R.M.S.

Microscopical and Zoological:

1914-16 ... ... T. B. Goodall, F.R.C.V.S., F.L.S.
1916-22 ... ... F. G. Penrose, M.D., F.R.C.P., F.Z.S., M.B.O.U.

Microscopical:

1922-25 ... ... F. B. Taylor, B.A.

Photographic:

1905-8 ... ... Councillor R. Y. Banks.
1908-10 ... ... C. J. Hankinson, J.P.
1910-12 ... ... E. W. Barlow, F.R.A.S.
1912-13 ... ... Geo. Brumell, A.R.I.B.A.
1913-14 ... ... No Chairman.
1914-16 ... ... R. Y. Banks.

Photographic and Record:

1916-25 ... ... R. Y. Banks.

Physical:

1904-25 ... ... Hubert Painter, B.Sc., F.C.S.

Zoological:

1904-8 ... ... G. E. J. Crallan, M.A., M.B., M.R.C.S.
1908-10 ... ... A. W. Thomas, M.D., M.R.C.S.

Zoological and Microscopical:

1910-11 ... ... A. W. Thomas, M.D., M.R.C.S.
1911-12 ... ... G. E. J. Crallan, M.A., M.B., M.R.C.S., and H. B. Wells, F.R.M.S.
1912-13 ... ... H. B. Wells, F.R.M.S.

Zoological:

1913-14 ... ... W. Munn Rankin, M.Sc., B.Sc.

Zoological and Microscopical:

1914-16 ... ... T. B. Goodall, F.R.C.V.S., F.L.S.
1916-22 ... ... F. G. Penrose, M.D., F.R.C.P., F.Z.S., M.B.O.U.

Zoological:

1922-25 ... ... F. G. Penrose, M.D., F.R.C.P., F.Z.S., M.B.O.U.

Elected and co-opted Members of Council.

Title changed from Committee in 1910.

Many of these also had seats on the Council ex-officio either before or after their election or co-option. Their names are marked *

1905-7 ... ... Atkins, Dr. F.
1906-7 — 1908-25 *Backhouse, Hy., F.R.H.S.
1914-15 ... ... *Banks, R. Y.
1905-6 ... ... Bax, P. B. Ironside.
1904 ... ... Bond, Dr. Eleanor.
1919-20 ... ... Boul, Mrs.
1904-8 ... ... *Brownen, Geo., F.C.S.
1906-8 ... ... *Brumell, Geo. , A.R.I.B.A.
1906-8 ... ... Buckland, Dr. Frank.
1921-22 ... ... Cardew, R. K.
1909-11 ... ... Chandler, S. Whitty, B.A.
1905-6 ... ... Clements, Lt.-Col. W. G.
1904 ... ... Clift, Dr.
1921-25 ... ... Curme, Mrs.
1905-10 ... ... Curtis, W. Parkinson, F.E.S.
1923-25 ... ... *Dodd, Col. J. R., M.D., F.R.C.S.
1914-16 ... ... Druitt, Jas., J.P.
1916-17 ... ... Dyer, J. Herbert.
1910-25 ... ... *Ellis, Hy. J.
1910-25 ... ... French, J. M.
1914-17 ... ... Furlong, R. O'B., C.B., M.A.
1919-Aug. 21 ... *George, A. D.
1904 ... ... Giles, Dr.
1904-6 ... ... *Goodall, T. B., F.R.C.V.S., F.L.S.
1918-20 ... ... Gosse, Wm., M.D., D.P.H.
1921-23 ... ... Gray, Arthur.
1910-15 ... ... Hamilton, Geo. G., M.B., F.R.C.S.
1916-18 — 1922-23 Hatton, Rev. C. O. S., B.A., F.L.S.
1911-16 ... ... Hill, S. McCalmont, D.C.L.
1916-19 ... ... Jeffery, T. J. P.
1906-10 — 1911-18 *Le Jeune, Hy.
1914-16 ... ... *Lyon, Claude.
1907-8 ... ... *Markwick, Col. E. E., C.B., C.B.E., F.R.A.S.
1907-8 ... ... Maude, W. C., J.P.
1910-16 ... ... *Morris, Sir Daniel, K.C.M.G., J.P., M.A., D.Sc., LL.D., F.L.S.
1910-11 ... ... *Michell, Theo., M.I.C.E.
1916-19 ... ... *Neale, Jos., B.A.
1905-6 ... ... *Ord, W. T., F.G.S.
1904 ... ... Parish, Miss
1915-16 ... ... *Penrose, F. G., M.D., F.R.C.P., F.Z.S., M.B.O.U.

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1904	Reid, C. J.
1919-25	Rooke, Miss S. G.
1918-19	Rothwell, Mrs.
1908-9	Scott, Alex., B.A.
1908-25	*Scott, J. H., M.E., M.I.M.C.E
1904-25	Sherring, R. Vowell, F.L.S.
1920-25	Simpson, Rev. E. J. Douglas, M.A.
1916-25	Smythe, J. H. Ralph, J.P.
1923-25	*Spencer, J. F.
1905-10	Stubbs, G. M.
1918-20	*Taylor, F. B., B.A.
1921-23	*Wallace, W. G.
1907-10	*Wells, H. B., F.R.M.S.
1906-7 — 1916-20 1923-25	*Woodhouse, W. J., A.C.I., M.I.H.

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Chairman: Rev. C. O. S. Hatton, B.A., F.L.S.

1915 Dec.- Oct. 1919	General Policy of the Society.
1919 Nov.- Feb. 1920	Housing.
1920 Feb.- Oct. 1922	Housing and Finance
1922-1925 ...	Finance and General Purposes.

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Chairmen:

1918 Mar.- Oct. 1918	Geo. Grace, B.Sc., A.R.C.Sc.
1918 Nov.- Oct. 1919	Hubert Painter, B.Sc., F.C.S.
1919 Nov.-1925 ...	Rev. C. O. S. Hatton, B.A., F.L.S.

Museum Committee.

Chairmen:

1917-1921 ...	W. G. Wallace.
1921-1925 ...	Rev. C. O. S. Hatton, B.A., F.L.S.

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1909-14	H. Sutton and E. Bicker.
1914-15	E. Bicker and Hy. Backhouse, F.R.H.S.
1915-17	E. Bicker and E. W. Barlow, F.R.A.S.
1917-25	E. Bicker and C. H. Blackett.

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J. M. French
The Hon Secretary (R. A. de Paiva)

Library:

Rev. C. O. S. Hatton, b.a., f.l.s. (Chairman)
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F. G. Penrose, m.d., f.r.c.p. f.z.s., m.b.o.u.
Hy. Backhouse, f.r.h.s.
R. Y. Banks
G. E. J. Crallan, m.a., m.b., m.r.c.s.
Claude Lyon (Hon. Librarian)
Hy. J. Ellis
Miss A. G. Veale

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The Hon Curator (Rev. C. O. S. Hatton, b.a., f.l.s.)
Sir Daniel Morris, k.c.m.g., j.p., f.l.s.
Chairman of Archæological Section (Col. J. R. Dodd, m.d., f.r.c.s.)
Chairman of Botanical Section (Howard Lacey)
Chairman of Geological Section (Henry Bury, m.a., f.l.s., f.g.s.)
Chairman of Zoological Section (F. G. Penrose, m.d., f.r.c.p., f.z.s., m.b.o.u.)

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The Hon. Treasurer (Geo. Brumell, a.r.i.b.a.)
The Hon. Secretary (R. A. de Paiva)
G. E. J. Crallan, m.a., m.b., m.r.c.s.
Henry Bury, m.a., f.l.s., f.g.s.

Garden:

Sir Daniel Morris, k.c.m.g., j.p., f.l.s.
Rev. C. O. S. Hatton, b.a., f.l.s.
Hy. Backhouse, f.r.h.s.

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BRITISH MUSEUM
15 DEC 25
NATURAL HISTORY.